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RUNNING HEAD: Tough but not enough

*Tough but not enough: Female university athletes self-reported mental toughness*

Kerrie Trottier, BA (Child and Youth Studies, Humber College)

THESIS

Submitted to the Faculty of Social Work  
in partial fulfillment of the requirements for  
Master of Social Work degree  
Wilfrid Laurier University  
2020

Thesis Committee Chair: Dr. Eliana Suarez

Thesis Committee member: Dr. Ginette Lafrenière

External Examiner: Dr. Rosemary Vito

*Tough but not enough: Female university athletes self-reported mental toughness*

**Abstract**

**Background:** Mental health and sport related mental toughness have become prominent in the media in recent years. Successful athletes cope with stressful situations by building their mental toughness in response to challenging conditions. In university, athletes are required to maintain performance standards, school standards of excellence, and continue to develop their mental toughness. This study was motivated by the limited knowledge associated with female athletes, at a unique point in their life where they are challenged both academically, socially, and in their chosen sport.

**Methods:** This study proposed the following two questions; “*What are the factors associated with mental toughness for elite female athletes in Ontario?*” and “*What is the current standing of mental health attitudes within elite female university athletes in Ontario?*” This cross-sectional study used a quantitative online survey design and is grounded in a pragmatic paradigm. Mental health attitudes were measured by *Community Attitudes towards Mental Health (CAMI)*, and the *Psychological Performance Inventory- Alternative (PPI-A)*, a measured mental toughness.

**Results:** Using purposive and convenience sampling strategies, 60 participants were recruited who self-identified as female university students under 35 years old, participating in a varsity level sport, and currently attending an Ontario university. Multiple regression analyses found two models that explain 33.4% of the variance of mental toughness, and 33.8% of the variance of mental health attitudes. Attending school, and type of sport practiced, were strong contributors to both models as well as other factors.

**Conclusion:** This study brings forth implications for interdisciplinary research, practice, and policy, with an emphasis on psycho-educational, mental health, and sport-specific interventions, and potential change in sport culture for female athletes. Despite limitations, the study has the potential to contribute to the scarce literature with female elite university athletes in Ontario

### **Dedication**

I wish to dedicate this work to all university varsity athletes. I know how hard you work to balance school and sport. I know that you struggle to wake up for those early morning practices after a long night of writing papers. You can do it.

## Acknowledgement

“Team-work makes the dream work” is not an adequate expression to capture the amount of time, effort, and energy put in by so many people to make this project a reality. It feels like forever ago that I decided to go on this journey and take a passion and my own personal experience into the world of research. I would like to thank the individuals who participated in pilot testing of the survey: Montana Grey, Emily Kennedy, and Katie Montague. My survey, and therefore this thesis, would not have been smooth and as valuable without your input. Thank you to Laurier’s Faculty of Social Work for providing the opportunity to pursue a passion of mine.

Many thanks to Dr. Rosemary Vito for being my external examiner. Your thorough review and thought-provoking questions and comments took this work that extra step further. To Dr. Ginette Lafrenière, you have helped me become a better writer, researcher and opened my lens to the importance of my own passion within research. To my advisor and thesis committee chair, Dr. Eliana Suarez, I owe everything. Your support, excitement, and encouragement on this project have carried me through. Your consistent feedback and constructive criticism have not only made this project what it is, but also made me into a better researcher, writer, and person today. Thank you – your passion and dedication to your work helped keep my love for research alive, and for any future graduate students, you are so lucky if ever they have someone as great as Eliana Suarez advising you.

To all my friends and family members, too many to list here, who have listened to me preach, complain, babble, and vent over the last two years – your support has not gone unnoticed! Special thanks to my mother Christine, who was so kind to proofread over and over again.

My parents have been enormously supportive, through the tears and stressful moments of my post secondary career – I cannot thank you enough. To Wasi, my partner, and best friend: there is no way I could have done this without you. From helping edit papers, reminding me to breathe and to take a moment to relax, thank you for wiping my tears during the difficult moments, and celebrating with a hug and a big smile at the successful ones.

I am especially grateful for the support of the individuals who came to my defense.

Lastly, I want to thank the 65 women who participated in my survey. You have helped to contribute to a field that so desperately needs attention. This work is your work, it takes a lot of people to build a successful athlete, it also takes a lot of people to create a successful thesis. Together, we can dream of a day where female athletes' mental health, mental toughness and bodies are the site of celebration not the site of political debate.

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## Chapter 1: Introduction

Growing up, the one thing I can remember is political controversy around the female body and sports. I recall many people telling my parents that girls do not play hockey, and that hockey is a sport for boys. The female body has always been the sight for political debates and within sports is no different. Western culture emphasizes feminine characteristics and thinness, which is in direct clash with athleticism and the development of lean muscles for women in sport (Beckner & Record, 2016).

My sport was hockey; I grew up playing at a variety of competitive levels. I could barely walk before skates were put on me. My dream was always to play in the National Hockey League (NHL). It did not matter that it was a league for men, I had a dream to play against the best in the world.

Body image and body structure came into my world of sport at an early age. When I was 7 years old, I first started noticing comments about my body. The comments were often “she’s too small to play goalie”, “she’s not tall enough” or “she needs to eat differently if she wants to achieve success”. Reflecting back, none of these statements were in my control, I was seven. I did not pick my own food, my parents provided for me. I could not change how tall I was, and I could not put on weight in the blink of an eye.

It was not till later in my life that I began to realize the importance of mental toughness and mental health within sport. Growing up in sport, I had extremely low mental toughness; when something went wrong in the game I would contemplate for the rest of the game and the whole drive home, making negative comments about how I let that happen or I could have done better. I set goals for myself that I was unable to achieve, and when I was unsuccessful I would engage in negative self-talk, be unable to control my emotions and it would affect my

performance and relationships within sports. This negative self-talk went on for years, and it cost me a lot of success. I was lacking in positive coping strategies and unable to block out negative thoughts. I started to lose more games and it affected my playing time.

When I was young, mental health and mental toughness were not addressed in the world of sport. You performed at the highest standard you could, and if that were not good enough, they would find someone else who could perform to that standard. Fast forward to a female in sports today, and it has greatly changed over the years. Now we see more strong female athletes speak out about mental health and the discourse around gender norms.

This thesis is about the development of mental toughness in elite university level female athletes and the culture of mental health that is created within sport and within university athletic departments. *Mental toughness* is defined in similar ways as resilience, which is understood as “competence when under stress, or a combination of characteristics a person has despite challenges that they may have faced” (Ungar, 2006, p.2) . Media attention has gained momentum with several stories about female athletes, when reporters ask a question about outfits, her hair, or her family, but ask male athletes about their performance. This thesis aims to start the discourse and move away from gender stereotypes that see females as pretty objects in sport uniforms, into highlighting their physical and mental toughness (Hively, & El-Alayli, 2014).

We teach young children to seek help from an adult when they get hurt, and to see a doctor if it does not get better. When it comes to mental health, that help seeking behaviour and philosophy changes, as sport cultures teach that a certain body type is ideal, a certain way of thinking is ideal and there is no place for self-doubt. In order to change the culture around mental health in sports, coaches, parents, and teammates need to stop teaching that crying shows

weakness. We must start teaching mental health literacy at initial stages of athletic careers. Most recently, seasoned athletes have started to disclose personal issues such as Michael Phelps, Demar DeRozan and Imani Boyette, so that other athletes can know they are not alone and can acknowledge what is happening to them and can seek help when they are not feeling well (Gleeson & Brady, 2017).

A simple Google search of athletes and mental health brings forward several million results, but a quick scan of titles in research articles and news shows that most, if not all, focus is towards male mental health in sport. Now type in female athletes into Google and the titles that pop up include “10 beautiful female athletes we can only dream of dating” or “the sexiest female athletes on the planet”. In changing from female to male, still several results pop up about the hottest male athlete but the focus also shifts to the greatest male athlete of all time and the fittest male athlete. The discourse surrounding an athletes’ body is present despite gender, but there is certainly a heightened issue with the female body.

What brought me to this subject matter was my connection and struggle with mental health challenges when playing sports. I went to university for my undergraduate degree and I was challenged once again with the demands of school and sport. Athletes are never taught how to balance the high demands of post-secondary education and the demands of playing a sport at the highest level. For myself, the challenge grew bigger and I was unable to balance school and sport, so like many students I chose school over my sport. I acknowledge this is not the case for everyone, as sometimes the identity that is involved in being an athlete outweighs educational dreams. Either choice is difficult and does not need to be the story for all athletes, there is a possibility to develop and maintain mental toughness, while balancing both educational demands

and sport demands. This thesis aims to examine factors contributing to the mental toughness of elite female athletes and their attitudes towards mental health

### **Outline of the Thesis**

This thesis is structured into six chapters. The initial chapter broadly discusses issues related to females in sports and the author's connection to the topic of mental toughness, mental health, and sport. It also provides an outline of the thesis. In Chapter 2, the literature on mental health, female body image, and coping in sport is discussed, highlighting the empirical and societal underpinnings focused on the eating disorders and the female body. It also highlights the absence of literature on mental toughness in female sport, specifically in Canada. Additionally, the theoretical frameworks for this study are presented. Chapter 3 outlines the research methodology, including the research objectives and questions, the research design and survey instrument, the population and sampling frame, ethical considerations, the participants' responses, and data collection and analysis strategies. Chapter 4 presents the results, highlighting the bivariate associations and the regression models that were developed. Chapter 5 offers a discussion about the findings in the context of what was previously known and poses implications for research, policy, and practice. Finally, Chapter 6 offers conclusive remarks and final reflections based on the research findings.

## **Chapter 2: Empirical and Theoretical Review**

The 2017 Annual General Report published by the Ontario University Athletes Organization (OUA) showed that 42.3% of athletes participating in registered co-ordinated university athletics were female (Ontario University Athletics, 2018). Therefore, within Ontario more than 4,000 female students compete at a high, intensive level of sport alongside concurrent educational commitments. Despite this significant representation of female athletes in the largest Canadian province, there is limited research on the mental health of Canadian university athletes and even less from a gendered perspective. Therefore, the following study focused on examining the experiences that female athletes faced during their university careers in relation to their mental health and mental toughness.

### **Mental Health and Athletes**

The Canadian Community Health Survey for Mental Health (2012) reports that an average of 4.9 million Canadians aged 15 and over have experienced a need for mental health care. It has been reported that 34% of Canadians aged 15 to 24 have consulted a resource for emotional health, mental health, or alcohol use concerns in the previous year (Canadian Community Health Survey Mental Health, 2012). Young people aged 15 to 24, are more likely to experience mental illness and/or substance use disorder than any other group (Smetanin et al, 2011), with 70% of mental health problems having their onset during childhood or adolescence (Government of Canada, 2006). In 2012, 14% of Canadians 12 years of age or older reported seeing someone for emotional or mental health support in the past 12 months (Canadian Community Health Survey Mental Health, 2012). While belonging to the age range of these reports there is a gap concerning elite sport participation, and how this highly competitive

environment and the pressure associated with this environment shapes understanding and experiences of mental health (Coyle, Gorcynski, & Gibson, 2017). For the purpose of this study, elite sport participation will be defined as *a person who is currently competing at a varsity level in their chosen sport, which can be an individual or team-based sport* (Rice et al, 2019, p. 1 ).

Currently, the prevalence of young athletes' experiences with mental health difficulties is unknown (Gerber, Best, Meer & Stetter, 2018). Moreover, it was identified there is an under representation of female elite athletes in sport literature and research. However, in a recent review of elite diving athletes, it was shown that women are more likely than men to have mental health difficulties, and twice as likely to be diagnosed with an anxiety disorder (Coyle et al, 2017). There are many controversies with generalizing this statement, particularly with the recognized fact that women are more open to ask for help. Women proportionately display greater levels of help seeking behaviours (e.g. calling crisis lines, speaking to peers or using on campus resources such as the Wellness Centre) and therefore are overrepresented in data for accessing mental health support and having a diagnosis of a mental health disorder (Gerber et al, 2018). In Ontario 62% of youth reported having concerns about their anxiety levels, with only 32% reporting speaking to a mental health care professional about their level of anxiety (Ipsos Public Affairs, 2017).

Mental Health is defined by the World Health Organization (WHO) as *a state of well-being in which an individual realizes their potential, can cope with stress of life, can work fruitful and contribute to their community* (World Health Organization, 2012, n.p). For athlete mental health difficulties are understood as *non-physical factors impairing, interfering, or stopping performance or pursuit of sport achievement* (Cumming, et al, 2012). It has been reported that sports participation can lessen symptoms associated with mental health and can

make positive contributions to psychological well-being (Coyle, et al, 2017). However, other studies such as Cumming et al (2012) noted that sport participation can, also negatively impact the psychological well-being of athletes. An example of the negative impact of sports participation on psychological well-being can include unrealistic expectations, criticism for failure, and/or excessive pressure from parents and coaches. These experiences can result in fear of failure, anxiety, emotional exhaustion, depression, depersonalization, and lowered self-esteem (Cumming et al, 2012). When an athlete deals with a mental health diagnosis, it is noted as an *embarrassment factor* (Coyle et al, 2017) which highlights the existing stigma around open discussion of mental health difficulties. Despite the reported reluctance to disclose or seek help for mental health difficulties within the athletic world, a recent systematic review suggests that the prevalence of mental health symptoms and conditions in current and former elite athletes may be slightly higher than in the general population (Gouttebauge, et al, 2019).

One of the top researched topics about female athletes is on *disordered eating*. Voelker, Gould and Reel (2014) noted 25.5% of a sample of female athletes from the United States of America were symptomatic of an eating disorder. Female athletes that reported disordered eating are more likely to be involved in aesthetic sports (gymnastics, figure skating and cheerleading). Moreover, 42% of athletes within this category of sport met DSM-5 criteria, which is much higher than other sports such as endurance (24%), technical (17%), and ball sports (16%) (Voelker, Gould, & Reel, 2014).

Another factor related to the mental health of female athletes that has been reported is *perfectionism*, both positive and negative. Positive perfectionism has been defined as setting high performance standards to please oneself and others whereas negative perfectionism is ignoring body signals and pushing your body and mind to continue (Voelker, Gould, & Reel, 2014).

Within the research presented by Voelker, Gould, and Reel (2014), they indicated a correlation between negative perfectionism and eating disorders. When participants were asked about self-esteem, 76% cited a connection between low self-esteem and the onset of disordered eating, which suggests that self-esteem may have special relevance and impact for female athletes. Eating disorders in the general population affect female ten times more than men, 0.4% of adolescent or young adult females in Canada have a reported eating disorder (Ackard, Fulkerson, & Neumark-Sztainer, 2007).

*Athletic identity* has been shown to also have a connection with mental health difficulties, as a strong athletic identity has been previously linked to the use of disordered eating as a means of achieving success and demonstrates commitment to achieving the thin ideal body shape (Voelker, Gould, & Reel, 2014). This association of athletic identity as a risk factor for disordered eating, has been related to a limited development of a sense of self outside of competitive athletics (Coyle, Gorcynski, Gibson, 2017). Voelker, Gould and Reel's (2014) survey research with a sample of 272 female athletes indicated an association of body image and athletic identity leading to disorder eating or other mental health concerns (Voelker, Gould & Reel, 2014). Common limitations of research in this topic have been the data being collected was through self-reported scales, the use of convenience sampling and being specific to the United States of America.

*Athletic performance* Any problematic issue interfering with their performance have been defined by athletes as mental health challenge (Coyle et al., 2017). Several studies noted different stressors that athletes faced professionally, while training or being in competition. Cosh and Tully (2015) study participants noted coaching staff as a stressor, in the case that coaching involves inflexibility when athletes are balancing training and educational demands. A coach

understanding and support of the educational components of university athletics is a crucial feature in an athlete's ability or inability to combine sport and education and being successful (Cosh & Tully, 2015). Stress and anxiety can be caused by fear of educational or sport failure; in the Coyle et al (2017) study of diving athletes, it was noted that if you are scared of failing a dive, your stress level increases. When stress levels increase, performance abilities are affected and you do not get the desired success you were hoping for (Coyle, et al, 2017). Dalsky, Corser and Gohm study (2005 as referenced by Davrishi, Marati & Borzo, 2015) study indicated that in highly stressed situations, emotional intelligence acts as a mediator and those with higher emotional intelligence experience lower levels of stress in such situations, therefore having a desired outcome. The four areas of emotional intelligence that could act as protective factors for athletes would include : Self awareness, self management, empathy and social awareness, and relationship management (Goleman & Boyatzis, 2017).

#### *School and sports: A stressful dyad for elite athletes*

Elite athletes struggle balancing demands of their chosen sport and attending university. As a result of their struggle many athletes often placed education as less valued than sports, which can have implications for athletes once they can no longer compete at an elite level (Cosh & Tully, 2015) . In addition to inability to sleep well and other worries, scheduling is reported as a stressor for many athletes as they try to balance training demands, traveling, and submitting assignments on time. Cosh and Tully (2015) findings emphasized that there are a high number of students who reported accommodating to a lower quality of academic performance, for instance, switching to an easier major or going part time to manage stress in order to better perform at their chosen sport. This educational sacrifice for sport means that once an athlete can no longer

compete in elite sport, they are left with a limited or reduced opportunity for educational aspirations and work opportunities (Cosh & Tully, 2015).

Paradoxically, athletes both elite and non-elite have been shown to be more tolerable, and able to handle higher levels of stress than non-athletes (Calmeiro, Tenenbaum, & Eccles, 2014). Little is known about the coping process following stressful events experienced during competition and the extent coping styles can be identified among competitive athletes (Anshel & Sutarso, 2007). However, it has been reported that those with more experience within highly competitive sport worked through a more problem focused coping approach rather than emotion focused coping strategies. The rationale behind this could be that higher-level elite athletes become able to better identify challenging problems and incorporate appropriate coping strategies more fluidly (Calmeiro, Tenenbaum & Eccles, 2014). Within competition, athletes who are more resilient and have a strong self-understanding of their abilities are found to adapt better in times of challenge, and as a result are able to regulate their in-competition emotions and adapt positively through behavioural adjustments (Belem, et al, 2014). Athletes who use a problem focused response to stress can deal directly with the stressor which increases their ability to cope with stressful situations without becoming emotional during competition (Belem, et al, 2014).

As coping is very individualized and the past experiences of an individual will affect their ability to cope with different scenarios, it is vital that athletes learn a variety of coping mechanisms and approaches to deal with the stress of having multiple demands placed on them by attending post-secondary education simultaneously that practicing sports as elite athletes. One of such coping mechanisms pointed out in research is emotional intelligence. According to Davrishi, Marati & Borzo (2015) female athletes who have higher emotional intelligence

experience lower levels of emotions that are related to fears, stress, and mental pressure. Studies have shown that interventions based on increasing emotional intelligence can provide the context for moderating negative emotions.

The process of building resilience and coping in athletes in front of competitive stressors pointed to the significant role of immediate social networks. For example, Belem, et al (2014) study indicate the role of key support systems such as coaches and parents to help athletes identify their challenges so that errors are not seen as negative, but a place for growth. *Adversity* refers to physical or psychological stressors which have the potential to interfere with normal function. Adversity and growth are defined differently among researchers and athletes who make it challenging to measure an athlete's response to adversity. Resilience has been defined as the capacity to survive well when a person is faced with adversity (Ungar, 2006). Therefore resilience is key for athletes when faced with adversity. Athletes have resisted mental health difficulties by developing individual ways of coping with adversity and disappointment and/or accessing services such as special support, sport psychologists, and lifestyle coaches assigned to elite clubs (Coyle, et al, 2017). Coping strategies are a fundamental psychological factor or protection for the development of resilience in athletes (Belem, et al, 2014). A person becomes reliance when a person develops patterns of positive adaptations (coping mechanism) when faced with adversity (Ungar, 2006)

Athletes competing in individual sports or sports where athletes are expected to reach their performance peak at an early age, such as gymnastics, have shown mental health benefits from learning to use *adaptive coping skills*, through modeling from coaches and parents (Cumming, et al, 2012). Younger athletes aged 12-16 have noted that their coping strategies include social support and cognitive strategies (Kristiansen & Roberts, 2010). Some adaptive

coping strategies younger athletes have used include mental skills such as focusing on the task, self-talk, and visualization (Kristiansen & Roberts, 2010). The ability to use adaptive coping strategies is overall associated with a more positive mental health profile in adolescent female athletes (Cumming, et al, 2012).

Research conducted on the emotional health of athletes, have focused on a variety of contexts related to male athletes' or mainly on eating disorders when examining female athletes' as mentioned above. Sparse research has been conducted on the emotional aspect of being a varsity level female athlete and the pressures that come along with that level of performance and educational demands. Kristiansen & Roberts (2010) reported a range of common stressors among athletes, including game errors, training demands, opponents, relationships and interpersonal demands, athletic career performance development issues, organizational structure, and climate of the sport. Despite being often exposed to an emotional journey, adversity may also contribute to athlete's growth of emotional regulation and emotional intelligence (Goleman, & Boyatzis, 2017; Tamminen, et al 2013).

Adversity can also create an isolating feeling, where athletes feel no one can understand or what they are going through. Athletes of both genders have reported feeling isolated and /or withdrawn when they experience adversity (Tamminen et al, 2013). Through this internal conflict, athletes have reported they often feel like they are fighting an individual battle even if they are participating in a team sport (Tamminen, Holt, Neely, 2013). Through discovering other athletes also faced similar adversity, many athletes thought the adversity they experienced brought them closer to peers and gave them social support they did not have before. The emotional disruption associated with facing adversity related with sports included: conflicts with a coach, losing that confidence of being good enough to participate at this level or mental health

struggles such as suicide, anxiety, and depression. Through these disruptive times, an athlete may search for meaning in their adversity. Davrishi and colleagues (2015) describe athletes' ability to recognize and accept their emotions during a performance, along with supportive relationships and emotional intelligence, as potential moderators of mental health difficulties.

### *Body Image and Femininity endurance*

The physical requirements for sports performance and the socially constructed physical ideal are in conflict. Indeed, the idea of being both physically active and having the idealized version of thinness often creates stress on female athletes (Steinfeld, et al, 2011) and has been a topic widely examined in research. Due to societal pressures felt by female athletes to conform to a feminine, *thin* ideal, there is a unique pressure placed on them to perform competitively but also to be feminine enough (Beckner & Record, 2016). This pressure placed female athletes at a unique risk for body dissatisfaction and unhealthy coping behaviours to meet the *thin* ideal. To deal with social pressures of traditional femininity, it has been suggested that female athletes often participate in sport using standards of traditional masculine athleticism in an attempt to manage and conform to norms to traditional femininity (Steinfeldt et al, 2011). All the above, suggests female athletes may endure increased societal pressures in negotiating femininity and muscularity.

Currently the idea of '*muscles on women*' is not automatically considered a threat to femininity, yet still remains a negative perception towards visible muscle tone, but not size or bulk (Steinfeld, et al, 2011). This difficulty of balancing both athletic ability and the idealized feminine body has created some dissonance with the elite female athlete population. Cumming, et al, (2012) studied female athletes and their perceptions of their body, the results of this study indicated inappropriate body size/physique for athletic success may predispose athletes to mental

health problems. As suggested by Steinfeld et al (2011), presently, participation in athletics often gives women a sense of empowerment and higher social status, but women still face pressure to maintain a societal standard of femininity for choosing to become muscular women participating in sports. Often female athletes develop their athletic identity using masculine standards of athleticism, at the same time trying to balancing the demands of socially and culturally desirable aspects of femininity. These incongruences can cause emotional or mental struggle for female athletes as they try to fit in with their peers at the same time as keeping a sport's ideal body image to be competitive. Suggestions put forward by previous research around female athletes' bodies have centred on having a supportive person role modeling healthy body types. For instance, female athletes' coaches are an important influence in the matter of health choices and body image (Beckner & Record, 2016). It has been also identified that coaches should take an individualized approach for monitoring physical development and recognizing the complexities of body image (Coppola et al, 2014). All the above pointed to the importance of immediate social networks such as peers and coaches for female athletes' successful negotiations of the nuances of body image as related to their athletic identities. The *pretty and powerful* metaphor considers women's lived experience within sports as messy, strong, and beautiful (Bruce, 2016, p. 369). This study supports the discourse of female strong bodies as pretty and powerful within sports.

### **Mental Toughness and Athletes**

Despite increasing openness within most sport fields to discuss and support athletes experiencing mental health difficulties (Gerber et al, 2018; Gouttebauge, et al, 2019) still the dominant discourse of how athletes achieve success and expertise in their practicing sports is by being 'mentally tough' (Bauman, 2016). *Mental toughness* (MT) is understood as a

*multidimensional personality construct which helps people to successfully cope with stress and strive when faced with challenging situations* (Lin, Mutz, Clough & Papageorgiou, 2017). MT is also considered a personal capacity supporting high levels of performance in non-measurable areas such as personal goals and more objective performance (e.g., sales, race/swim time, GPA) despite everyday challenges and stressors as well as significant adversities (Gucciardi, Hanton & Gordon, 2015). The topic of mental toughness repeatedly is referenced to throughout sports literature. Mental toughness is also understood as a consistent improvement to better oneself despite the struggles or barriers in a person's way (Coulter, Mallet & Singer, 2016). According to Coulter, et al (2016) mental toughness is socially constructed by the unrelenting social standards and sacrificial display of constant improvement and relentless effort that pressure athletes. Indeed, Western views of success in sports promote *mental toughness*, whereby dominant cultural values function with the idea of "the pretence to justifiably push people harder and for longer in pursuit of success" (Coyle et al, 2017). *Mentally tough* athletes have been described as resilient, goal focused, and confident in their abilities, as well as proficient at regulating their emotions and behaviour (Walker, 2016).

Concerns of how much contradictory are frameworks of mental toughness and mental health in the world of sports have been already raised (Baum, 2016). As previous reviews on mental health and coping mechanisms show there is a continuous presence of competition stress and adversity that surround the experiences of elite athletes. Most research suggest therapeutic and/or training interventions to address timely mental health consequences of such stressors .

Unfortunately, most work on the topic of mental toughness has been sport specific but there is more room and need for comparison between diverse types of sports. For example, Coyle et al (2017) interviewed elite divers on the subject of their understanding of mental toughness

and their mental health literacy. Although this work provides insight for elite divers, this research can be used to develop approaches to examine understanding of mental toughness within other sports. On the scarce examples comparing two sports, Cumming et al (2012) study offered findings from a sample of 105 female athletes from two distinctive sports: gymnastics and basketball. No differences were found within this study in the self-reported mental health or coping styles between both groups of players. The result of this study suggests that choice of sport in this sample does not significantly affect an athlete's likelihood of having positive or negative mental health experiences or development of coping strategies but comparison on samples with more diverse sports is needed.

An enhanced understanding of the importance of the development of mental toughness in athletes has been the focus of recent research. For instance, an elevated level of mental toughness has been associated with responding to feedback positively and seeing challenges as an opportunity to learn (Bulent, Ugur, & Ozkan, 2017). When an athlete is mentally tough they are also perceived as able to see stressful situations as challenges rather than threats to their accomplishments (Madigan, & Nicholls, 2017).

In this context, critical incidents have been also identified as playing a significant role in the development and maintenance of mental toughness, and the constant search for improved performance (Tamminen, Holt, & Neely, 2013), Mentally tough athletes see critical incidents as an opportunity to grow and see stress as a challenge, indicating that when athletes have developed mental toughness it offers them protection from negative psychological outcome and burnout within sports (Bulent, Ugur, & Ozkan, 2017). Tamminen, et al (2013) interviewed elite diving female athletes, to examine their feelings of personal growth after facing adversity within their individual specific sport. While this study contributes to an enhanced understanding of self-

reported perceptions of athletes' own firsthand experiences, the exploratory nature of the study did not enable assessment as to whether these perceptions can be transferable to other sports contexts outside of diving

Mentally tough athletes are also considered resilient, goal focused and confident in their abilities, as well as proficient at regulating their emotions and behaviour (Walker, 2016). Cowden (2016) study contributes to the growing literature of the importance that emotional intelligence plays in the development of mental toughness within elite athletes. Different strategies such as mindfulness training have shown to enhance general levels of mental toughness among provincial female hockey players in South Africa (Walker, 2016). Mental toughness has become widely viewed as an important prerequisite for sustained athletic achievement but there is still limited understanding of factors contributing to an enhanced level of mental toughness. Using mindfulness techniques as well as emotional intelligence athletes are able to adjust performance based on their opponents' emotional experience resulting in success and growth of an athlete's mental toughness (Cowden, 2016). Emotional intelligence and being aware of one's emotions through techniques such as mindfulness may be therefore suggested targets for evidence-based interventions aiming to the development of mental toughness within sports.

Despite a wide recognition of mental toughness as essential context for achievements in sports performance, there is not yet a conclusive definition of this concept ( Zeiger & Zeiger, 2018). Consequently operationalization of this concept has also variations and there is not a single gold standard measurement of mental toughness that has been recognized as such. Zeiger and Zeiger (2018) examined the properties of two measures of mental toughness and confirmed equivalent results that athletes' mental toughness was consistent across different dimensions of

performance and well-being. These authors call for further studies examining the applicability of these measurements to other samples of athletes. This study responds to this call by using one of these instruments, the *Psychological Performance Inventory- Alternative* (PPI-A; Sheard, 2009), to examine factors contributing to the mental toughness of sixty female university athletes in Ontario

The previous review of the literature found that the majority of research has focused primarily on male athletes, with scarce research focused on the mental health and mental toughness of female university athletes. In addition, most of the scarce research with female elite athletes has been based in the United States of America, with the primary focus on eating disorders and females competing in artistic sports (Coppola, Ward, & Freysinger, 2014; Cumming, et al, 2012). It is also noted that little research has focused on female university elite athletes in Canada, their experiences with mental health, and the development of mental toughness within a chosen sport. Canadian sport culture has shifted its lens most recently to focus on getting female involved in sport, articles like “She Belongs” by Canadian Women and Sport focus on factors that include women in sport (Wallace, 2020). This article focuses on Canadian sports, with the creation of space within a once male dominated sector to include female voices and strong female sports figures (Johnstone & Millar, 2012). The focus on strictly female athletes in Canada was purposeful done because several voices from the field of sports have surfaced in Canada indicating a willingness to change sport culture. This study aims to offer an exploratory examination of these issues in a sample of university female athletes from Ontario, Canada.

### **Researcher Social location**

Researchers must position themselves to acknowledge their own background, and how their interpretation may shape the research (Creswell, 2014). Every researcher has their own personal training and experience, which therefore influences the approach and research topic they choose (Creswell, 2014). The reason for choosing the topic of female university elite athletes? and mental health is my own experience of playing competitive sports since I was seven years old. As a Caucasian, middle income, female that was born in Canada, I may have preconceived ideas and opinions associated with mental health. I myself was privileged to come from a middle class family that could financially afford competitive sports and when I was older financially afford sports and school, this put me at an unearned advantage to do not have the added stress of needing scholarships for academic excellence or sport excellence to continue to enjoy sports. I have had positive and negative experiences with the elite sports world associated with mental health; therefore, I may also have predetermined ideas about the successes and struggles of female athletes and mental health care. When I had a negative experience within sports I had the unearned privilege due to my skin colour to speak out about my experience without consequences.

### **Pragmatic Paradigm**

Within the pragmatic research paradigm, there is the understanding research occurs in social, historical, political, and other larger contexts (Creswell, 2014). Using the pragmatic worldview means that multiple data collection formats can be used to gain a clear picture of the problem. Through the eyes of this paradigm, the truth comes from the consequences of actions. The pragmatic paradigm is problem centred, with real world practice orientation and practical

consequences. This will support the research as the focus is mental health and mental toughness for female elite athletes in Ontario which has yet to be studied. The bottom line of using a pragmatic paradigm is that research approaches should be used in ways that offer the best opportunities for answering meaningful research questions.

### **Theoretical Framework**

The framework that guided this study was a socio-ecological *mental health framework*, which is defined as *everyone [in society], having a role to play in the development and sustaining of mental health care* (Ontario Mental Health Promotion: A Framework for Action, n.d.). The mental health framework is vital in understanding as a researcher, that both a person/ and the organization delivering mental health services and those receiving the services all have a critical role to play in the success (CACUSS, 2013). A key tenet of the mental health framework is stigma around mental health, specifically for this research reducing the stigma of mental health within university level sports (Romer & Bock, 2008; Kelly, Jorm & Wright, 2007). Within stigma theory, Corrigan (2004) discusses four key social cognitive processes: cues, stereotypes, prejudice, and discrimination. Those who need mental health services often opt out as they do not want the label of having a mental illness. Help seeking behaviours within the mental health framework are connected to societal norms and being aware of the stigma within one's own culture or community when seeking help (Downs & Eisenberg, 2012). Corrigan (2014) cites that one of the key reasons for not seeking help is self-esteem and the feeling of losing out on social opportunities. This research focused on mental toughness and mental health attitudes, and how those attitudes, beliefs and social networks may influence help seeking behaviour. Ecological systems theory intertwined with a mental health framework, which combined highlight mental health as an interaction of individual's and social factors at micro, mezzo and macro systems

levels. Ecological system theory is based on four key concepts: “individual characteristics, proximal process, contextual variables, and the evolving nature of relations between a person and their environment” (Holt et al, 2008, p. 679). Therefore looking at the intertwined mental health framework and ecological system theory within this study it can be understood that the ways in which a person understands, interacts and develops mental toughness is influenced by the ecological systems they are involved apart of (Holt et al, 2008; Olsen, Baisch, & Monsen, 2016)

The study also used tenets of feminist theory, as it focused on a gender analysis and the interactions that female athletes have around mental health. This research generates new ideas to produce knowledge in relation to female athletes often being reduced to their body image rather than their skill level, the aim of this research was to create space for evolving future research and the importance of women’s mental health (Bruce, 2016). Using third wave feminism theory, this study welcomes a variety of ideas across people and within people for the understanding of mental health and mental toughness (Bruce, 2016). While feminist theory has long been focused on gender and the female body, following the feminist framework of intersectionality allows to understand that gender is not the only identity at stake in this issue ( Gringeri, et al, 2010). This study therefore looked at various socio-demographic variables (gender, age, race/ethnicity, sport of choice, school attended ) that could influence a person’s mental toughness. The reason that this is not considered a fully centered feminist study is because a) it has no participatory component, as the athletes were not consulted previously on the research process; b) it is strictly based on an online survey that provided numerical data and c) though it intends to offer information to improve services it does not attempt to create social change in other levels (Gringeri, Wahab, & Anderson-Nathe, 2010). These factors point towards this work not

encompassing all the tenets of feminist theory, so therefore cannot be fully referred as a feminist approach.

### Chapter 3: Research Methodology

#### Research Purpose and Questions

The purpose of this study was to better understand elite female athletes' attitudes and experiences with mental health as it relates to an athletic identity. This research was centred on the research question: *What are the factors associated with mental toughness for elite female athletes in Ontario?* For the purpose of this research, mental toughness was defined as an athlete's personal capacity to produce a consistent elevated level of performance within their selected sport despite challenges and stresses from both everyday stresses and significant adversities (Zeiger & Zeiger, 2018). *Mental toughness (MT)* is understood as a *multidimensional personality construct which helps people to successfully cope with stress and strive when faced with challenging situations* (Lin, Mutz, Clough & Papageorgiou, 2017). Through doing this research protective and risk factors for mental toughness will be examined, in the hopes of informing the development of a system and protocol for the enhancement of services offered to athletes at Ontario Universities. A sub question is: *What is the current standing of mental health attitudes within elite female university athletes in Ontario?*

Using these two questions allowed for a deeper understanding into the experiences of individuals identifying as a female elite athlete in Ontario on the interplay between attitudes towards mental health, development and sustaining of mental toughness. This research has potential implications for informing mental health services for university level female athletes in Ontario and to start a conversation about female athletes' mental health, and the support that can be provided to this unique sub-group of university athletes.

This research aims to improve the understanding of experiences developing mental toughness from the perspective of an athlete, who lives these experiences on the everyday. Therefore, this research has the potential to help inform the practices of mental health services on campuses and how we approach “mental toughness” for these female athletes and to ensure the needs of female athletes are being met. By using a quantitative approach, an opportunity existed to see what individual and structural factors were associated with mental toughness for female athletes in Ontario, and what affects mental health attitudes had on their own help seeking behaviours. By examining structural and individual factors, it was the hopes of this research to develop an understanding of possible barriers existing for help seeking within the realm of female athletes.

Ultimately, this study will help to raise attention to a subgroup of athletes who have not previously been represented in research, to give voice of some of the more complex issues that surround being an elite female athlete and pursuing higher education. To answer the study research questions, this cross-sectional study used an online survey design developed using Qualtrics software on a sample of university female athletes from Ontario, Canada recruited using purposive and convenience sampling strategies. This research aims to improve the understanding of academic and athletic experiences from the perspective of a female athlete, who lives this dual world day to day

### **Data Collection**

Female student athletes at Ontario Universities were invited to participate in an online survey formatted through Qualtrics. The survey was piloted for testing looking for comprehension and usefulness with a small number of female university students. The web links

for the survey were distributed through athletic directors at post-secondary schools in Ontario after the study obtained approval from the Research Ethic Board at Wilfrid Laurier University. Ten university athletic directors were contacted using a standard recruitment email (Appendix B), resulting on six universities (University of Waterloo, Wilfrid Laurier University, Algoma University, University of Toronto, York University and University of Ottawa) agreeing to collaborate and to distribute the survey to their female athletes.

### Sample

The purposive non-random sample for this survey study was limited to female university athletes in Ontario, Canada, who are between the ages of 17 to 30 years old. This age group was chosen in order to include first year students who had not yet turn 18 years of age and the age range went up to 30 years to include students who had taken time off to pursue professional sports or were coming back to universities for second careers. The survey link was sent to athletic directors across the province asking them to forward the invitation to student athletes. According to Kelley, Clark, Brown and Sitzia (2003) it is difficult to predict the exact number of survey participants but samples with rigorous and purposive selection are more powerful as they will yield more accurate results.

**Table 1. Study Variables**

<b>Dependant variables</b>		
Mental Toughness	Ratio	
Attitudes towards Mental Health	Ratio	
<b>Independent Variables</b>		

Age	Ratio	
Chosen Sport	Nominal	List of categories
Ethnicity	Nominal	Census categories
Year of study	Ordinal	From 1-5
University	Nominal	List of Ontario universities
Sexual orientation	Nominal	Census categories

### **Operationalization of dependent variables: 7**

***Mental Toughness.*** Personal reporting of mental toughness was assessed with *Psychological Performance Inventory- Alternative (PPI-A)* (Sheard, 2009; Golby, Sheard & van Wersch, 2007). This scale has been used to assess mental toughness in sports by looking at four subscales: self-reported determination, self-belief, positive cognition, and visualization. In a previous study (Sheard, 2009) Cronbach alpha for each of the four subscales was determined ( $\alpha=.80$ ), self-belief ( $\alpha=.75$ ), positive cognition ( $\alpha=.80$ ) and visualization ( $\alpha=.83$ ). PPI-A has been proven to show acceptable internal consistency across diverse samples (; Golby, Sheard & van Wersch, 2007; Sheard, 2009; Zeiger & Zeiger, 2018).

***Attitudes towards Mental Health.*** Perceptions of one's view of mental health were assessed with the *Community Attitudes towards Mental Health (CAMI)* scale (Taylor, & Dear, 1981; Bedaso, Yeneabat, Yohannis, Bedasso & Feyera, 2016). The scale will be used to gain insight into attitudinal differences within the sample in regard to views of acceptance of mental health difficulties and access to treatment or interventions that can help with those difficulties. The scale has questions on both positive and reverse directions (acceptance or rejection), but after transformations a high score represents higher acceptance of mental health distress and

interventions. The scale is 26 items long and has a 5-item Likert scale question. Some examples of questions used in this scale are: “Mental illness is an illness like any other” and “Most people feel that receiving mental health treatment is a sign of personal failure”. This instrument obtained a Cronbach alpha of  $\alpha = .89$  in a validation study (Taylor, & Dear, 1981) suggesting strong internal reliability

**Demographic information:** Information was collected in regard to age, gender, attending school or university, sport participating in and ethnicity of participants. The criteria for this study was that participants must self-identify as female/other, be attending a university in Ontario and be involved in a varsity level interuniversity sport. Universities that were contacted were based in Ontario. This research chooses to contact universities that had larger athletic departments, with the aim of collecting a large pool of data. Questions on ethnicity and gender follow the format from Census Canada. Categories on nominal variables that were represented with less than 5 participants were collapsed under “Other”

**Data Analysis** Statistical tests were conducted to first show descriptive information of the study sample. The demographic information collected on the survey was helpful to identify possible socio-cultural factors influencing mental toughness that are unique to female athletes of diverse backgrounds. Bivariate analyses (ANOVA, independent t-tests, and correlations) were carried out to analyze if there is an association between mental health toughness, mental health attitudes and additional study variables (Rubin & Babbie, 2008). Multiple regression analyses were completed to answer the research questions; *what are the factors associated with mental toughness for elite female athletes in Ontario? What is the current standing in regard to mental health attitudes within elite female university athletes in Ontario?*

**Ethical Considerations:** The study follows the guidelines of the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* (TCPS) in Canada and was approved by the Research Ethics Board of Wilfrid Laurier University (Appendix A).

*Informed Consent:* According to Hammer (2017) one of the important ethical considerations when conducting surveys is that when doing this type of research, it is important to have informed consent. Along with informed consent, people have the right to participate in the survey and have the right to refuse specific questions if they so choose; they also have the right to withdraw their information at any point in the research process. Furthermore, as we are working with a population that is vulnerable the survey questions should be appropriate for the audience. Before the survey is distributed, the researchers must ensure the instruments have been tested for comprehension. Finally, Hammer (2017) states the survey should be accessible to a diverse sample of the population of interest. Accordingly, before the survey was distributed, the researcher ensured the instruments were tested for comprehension with a small size of peer volunteers. All participants read and agreed with the consent form (Appendix A) before answering the survey questions.

*Confidentiality:* Safeguarding of data for anonymity and confidentiality was the highest priority. Data collection did not include names, but rather just a number connected to that survey data, all data and data analysis was kept on a password-protected computer, which will prevent access from unauthorized individuals. Participants' names and voluntary email addresses were collected and stored separately from numerical data and were only used for following up on the progress of the study (if participants wanted updates). It should be noted, however, that confidentiality could not be guaranteed because data was submitted electronically.

*Emotional risks:* As mental health is often a sensitive topic that can be triggering for some individuals, during the consent process and at the end of the online survey several Canadian resources were listed for counselling, support or more information. This ethical consideration allowed for proper consideration and awareness of individual experiences prior to completing the survey.

*Social risks:* Steps were taken to avoid participants being identified. However, it remains a risk with the amount of identifying information such as university attending, age, sport they are competing in, that participants may still have been vulnerable to being identified. To minimize this risk, only the researcher and thesis supervisor had accessed the survey data directly. In addition, further reports of this study will be carefully screened for removal of all possible identifiers of participants.

## Chapter 4: Findings

This chapter describes the results of the analysis of data collected after designing and distributing the online survey. The participants' sample is described in detail with respect to socio-demographic variables. Bivariate analyses were conducted between all independent and dependent variables to examine potential associations and trends. Lastly, multiple regressions were conducted in order to attempt to build a model to understand factors associated with the mean scores of mental toughness and mental health attitudes.

Due to the nature of online survey the amount of athletes recipients of the surveys sent out from athletic directors is unknown, a total of 10 universities were contacted to distribute to surveys among their athletes, from that total, only 6 universities are represented in the survey results.

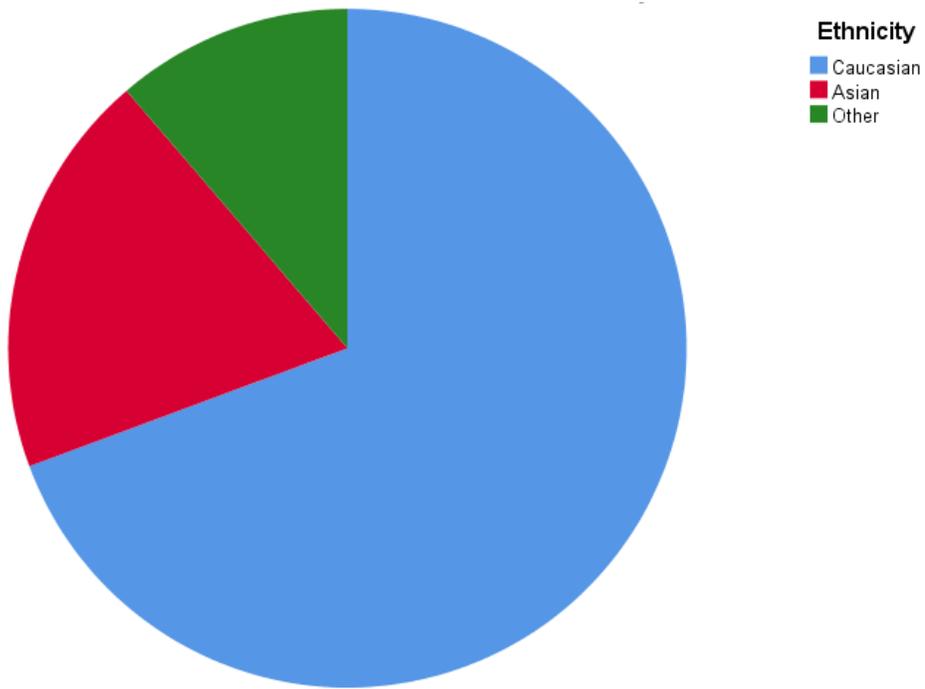
**1) Participants :** Sixty-five (n= 65) participants filled out the online survey, of those responses 60 (92.3%) of the data sets were usable. All 60 participants identified themselves as female, 30% of respondents indicated that they were 19 years of age, 69.4% of participants identified themselves as Caucasian. The university that had the highest response rate was University of Waterloo with 36 (58%) Participants were asked to indicate what sport they are playing at the varsity level; the two highest reported sports on the survey were track and field with 11 (17.7 %) respondents, and 8 (12.9%) respondents for soccer.

**Table 2.** Demographic Variables

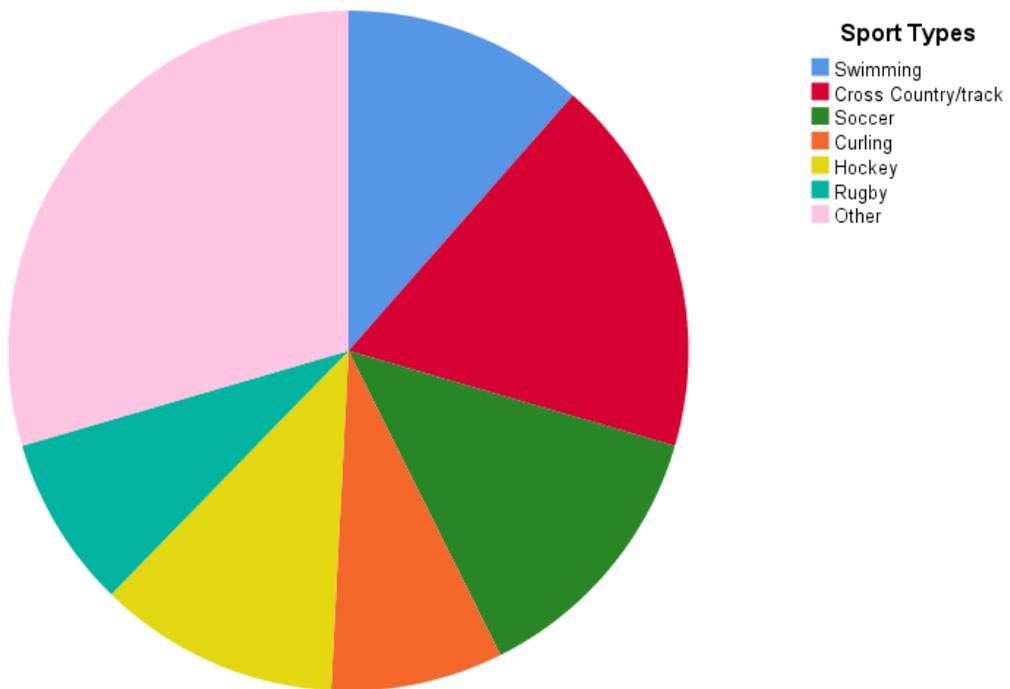
Variable		N	Percentage	Mean	Range
Gender	Women	60	100%	-	-
Age	17	1	1.7	18.5	17-22
	18	17	28.3		

	19	18	30		
	20	10	16.7		
	21	9	15		
	22	5	8.3		
Race/Ethnicity	Caucasian	43	69.4	-	-
	Asian	12	19.4		
	Other	7	11.3		
University Attended	Wilfrid Laurier	6	9.7	-	-
	Waterloo	36	58.1		
	York	5	8.1		
	Other	15	24.2		
Sport Being Played	Swimming	7	11.5	-	-
	Track	11	17.7		
	Soccer	8	12.9		
	Curling	5	8.1		
	Hockey	7	11.3		
	Rugby	5	8.1		
	Other	20	29		

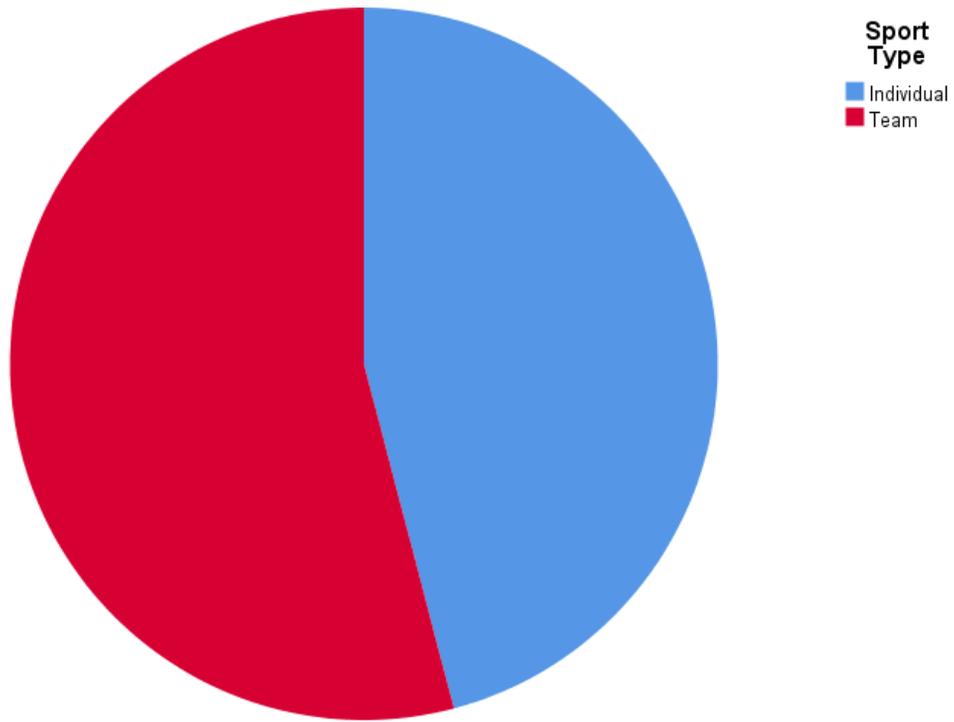
**Figure 1:** Ethnicity



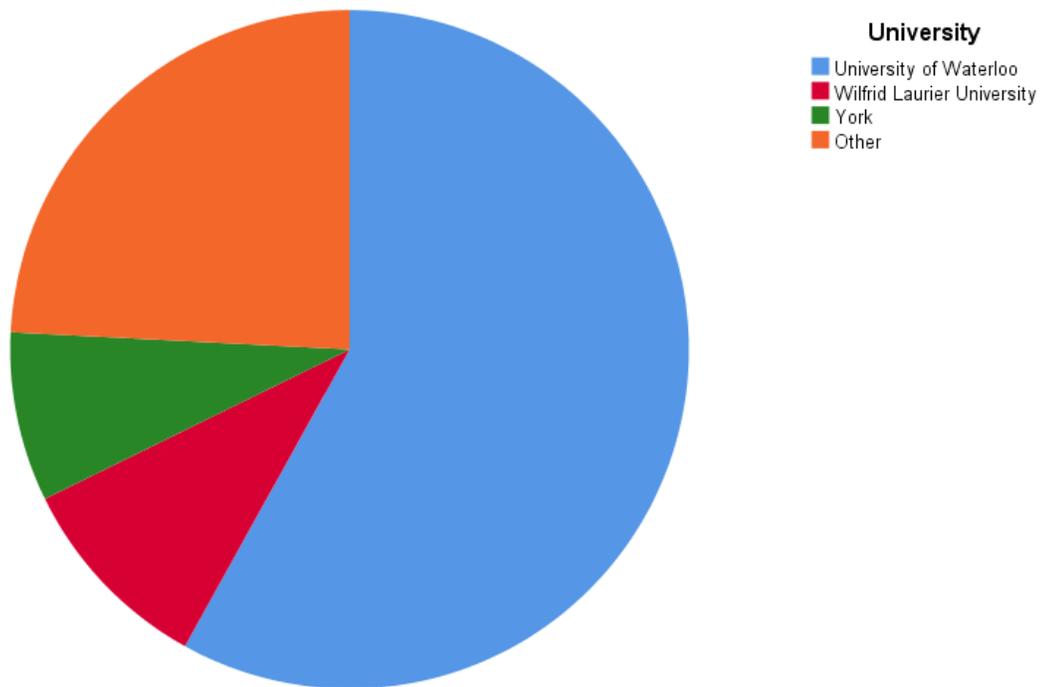
**Figure 2:** Types of Sports being played



**Figure 3:** Sport Type: Individual vs. Team



**Figure 4:** Universities



## 2) Dependent variables

This study used two standardized instruments to collect data regarding the two dependent variables: Attitudes towards Mental Health and Mental Toughness.

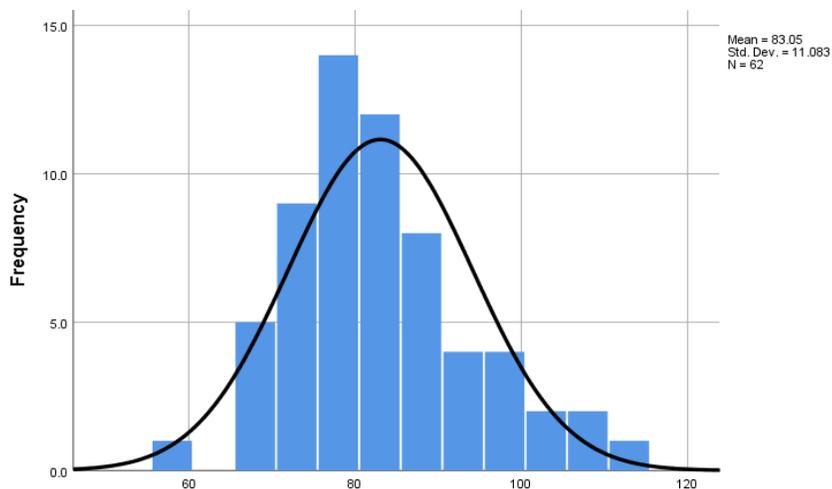
### *Attitudes towards Mental Health*

Attitudes towards Mental Health was measured by *Community Attitudes Towards Mental Health* (CAMI) scale (Taylor, & Dear, 1981) which looked at attitudes toward mental health.

The sample had a minimum score of 58 and a maximum score of 115, and a mean of 83.05 with a standard deviation of 11.1. When coding answers, neutral was coded as a three. Cronbach coefficient alpha was computed to obtain an internal consistency estimate of reliability of the composite attitudes of mental health. The scale was found to be internally consistent ( $\alpha = .84$ ).

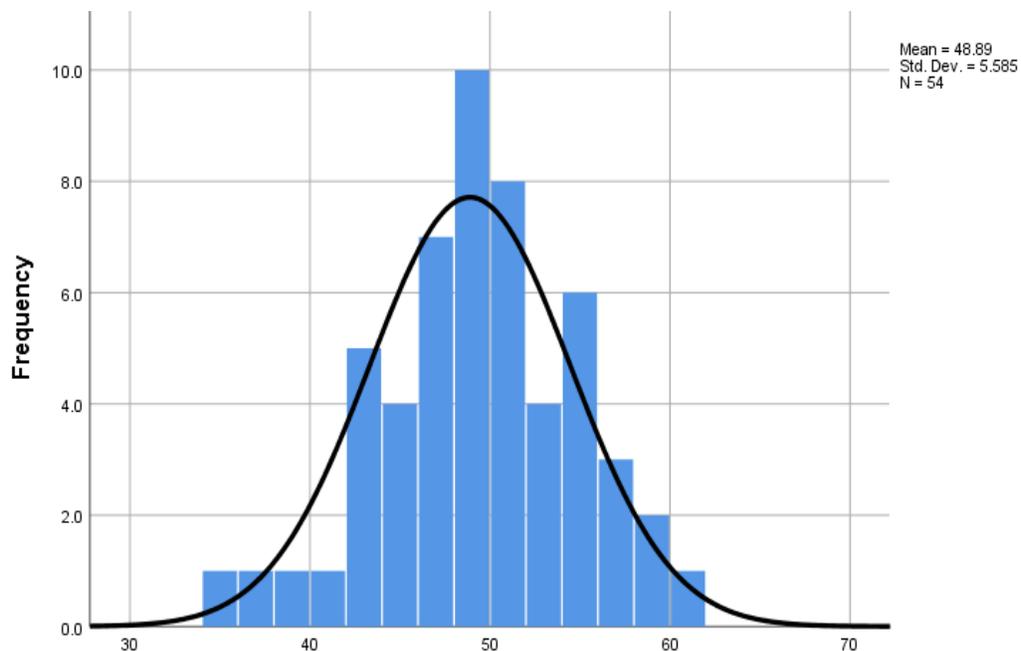
For this scale given that it was a 25 item, 5-point Likert scale, the minimum possible was 25 and the maximum possible would be 125. Negatively worded items were reverse coded. An example of a question that was reversed coded in this scale was “Most people feel that receiving mental health treatment is a sign of personal failure”.

**Figure 5.** Mental Health Attitudes Frequency Distribution



### **Mental Toughness**

Mental Toughness was measured by *Psychological Performance Inventory- Alternative* (PPI-A) (Sheard, 2009; Golby, Sheard & van Wersch, 2007), which looked at participants' self reported mental toughness as it relates to four subscales: self-reported determination, self-belief, positive cognition, and visualization. This scale consisted of 14 items on a 5-point Likert scale with a minimum score of 14 and a maximum score of 70. Overall mental toughness was shown to be fairly uniform with a mean score of  $M = 48.89$  with a standard deviation of  $SD = 5.585$  indicating that there is moderate variance among participants. Negatively worded items were reverse coded. An example of a question that was reverse coded in this scale was "I lose my confidence very quickly". The coefficient alpha was computed to obtain consistency estimates of reliability, the scale was found to be acceptable ( $\alpha = .65$ ), which reflects the range of skewedness of the frequency distribution. The limits of a skewed frequency distribution can include the data may be misleading to what the possible factors are contributing to mental toughness. Skewed frequencies can limit the ability to describe the typical cases resulting in loss of precision of conclusions. Mental toughness contained five outliers, two at the lower end at 33, 34 and three at the upper end valued at 65, 68 and 71, so these outliers were removed from the sample; the distribution remained skewed but on a lesser extent.

**Figure 6.** Mental Toughness Frequency Distribution

### 3) Correlational analysis

Correlations between the independent and dependent variables that are ratio-interval were obtained. The primary focus was on the correlation between attitudes about mental health and mental toughness. The data collected showed no significant linear correlation between mental toughness and attitudes towards mental health ( $r = .027, p = .840$ ); consequently, mental health attitudes scores were not entered in the regression analysis model for mental toughness. Age did not correlate significantly with either of the two dependent variables, mental toughness ( $r = .037, p = .777$ ), and mental health attitudes ( $r = .042, p = .756$ ).

#### 4) Bivariate Analysis

**4.1 Mental toughness:** A t –test examined the differences between mean scores of mental toughness with team-related sports and individual sports. Two ANOVA were conducted to establish the association of mental toughness with sports of choice and school attended.

An independent sample t-test was conducted to compare mental toughness scores in team sports and individual sports. There was not a significant difference in scores [ $t(57) = .139, p = .890$ ] for mental toughness scores for team based sports ( $M = 48.72, SD = 5.721$ ) and scores from participants practicing individual sports ( $M = 48.93, SD = 5.7171$ ).

A one-way analyses of variance was conducted to evaluate the relationship between “school of choice” and Mental Toughness, and the results were found to be statistically significant [ $F(3, 56) = 4.823, p = 0.005$ ] which indicate that differences between mean scores of mental toughness from participants within the 4 attending schools are not produced by chance. Post hoc analysis indicated that only the difference between the mean scores of University of Waterloo and York university was significant at  $p = .005$ .

**Table 3:** Mean Mental Toughness Mean Scores “University of Choice”.

	Mean	Standard Deviation
University of Waterloo	50.6	4.924
Wilfrid Laurier University	47.17	2.483
York	41.8	2.950
Other	47.86	6.826

A one-way analysis of variance was conducted to evaluate the relationship between sport of choice and mental toughness scores, and the results were found to not be significant at  $p < .05$  level [ $F(6, 52) = 1.788, p = .120$ ], thus, the differences between mean scores from participants

representing the different sports of choice in this sample are likely produced by chance and did not achieve statistical significance

**Table 4:** Mean Mental Toughness Scores “Sport of Choice”

	Mean	Standard Deviation
Swimming	47.14	6.44
Track	47.8	4.59
Soccer	45	5.95
Curling	53.6	4.93
Hockey	50.67	5.79
Rugby	50.11	4.78
Other	48.81	5.44

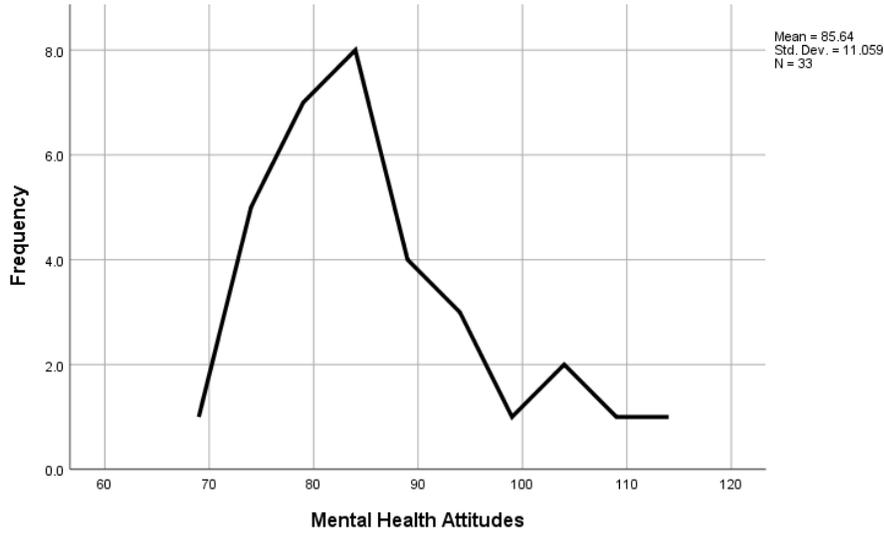
#### 4.2. Mental Health Attitudes

To answer the study second question, an ANOVA was conducted for mental health attitudes as the outcome variable and universities participating in this study, as well as with different type of sports practiced by participants. The overall mean score of the sample in regards of mental health attitudes was  $M = 83.05$ ,  $SD = 11.083$ , which is considered a high score ( Figure 5) . Participants who identified going to the two schools with a larger number of participants, either Wilfrid Laurier University ( $M = 73.17$ ) or University of Waterloo ( $M = 80.92$ ), indicated lower mean scores for mental health attitudes compared to the sample average.

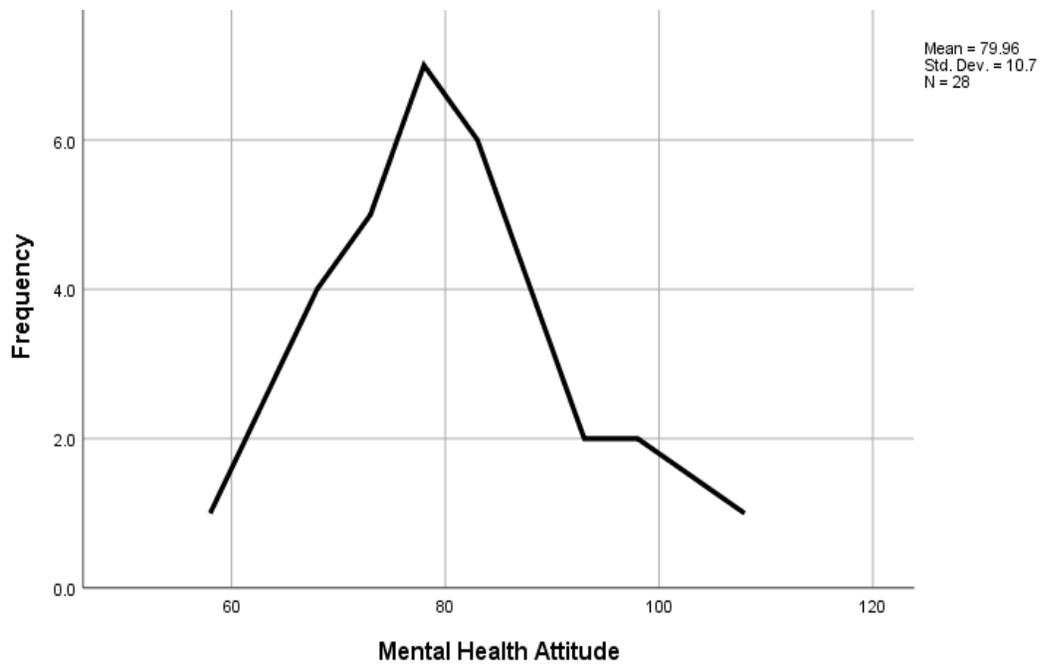
An independent sample t-test was conducted to compare mental health attitude scores in team sports and individual sports. There was a significant difference in scores [ $t(58) = -2.026$ ,

$p=.047$ ] for mental health attitudes scores for team based sports ( $M=95.64$  ,  $SD=11.059$ ) and scores from participants practicing individual sports ( $M=79.96$ ,  $SD=10.700$ ).

**Figure 7:** Frequency of Mental Health Attitudes among Team Sport Athletes



**Figure 8:** Frequency of Mental Health Attitudes among Individual Sport Athletes



**Table 5:** Frequency of Mental Health Attitudes among School attended

	N	Mean	Std. Deviation
University of Waterloo	36	80.92	8.012
Wilfrid Laurier	6	73.17	9.326
York University	5	90.20	14.481
Other	15	89.73	12.809

A one-way analyses of variance was conducted to evaluate the relationship between “school of choice” and Mental Health Attitudes, and the results were found to be statistically significant [ $F(3, 58) = 5.569, p = 0.002$ ] which indicates that differences between mean scores of mental health attitudes from participants within the 4 attending schools are not produced by chance . A post hoc analysis using Bonferroni test indicates the following pairwise differences that achieve statistical significance:

1. Differences between scores from University of Waterloo and “Other” ( $p=.035$ )
2. Differences between scores from Wilfrid Laurier University and York ( $p=.041$ )
3. Differences between scores from Wilfrid Laurier and “Other” ( $p=.007$ )

A one-way analysis of variance was conducted to evaluate the relationship between sport of choice and mental health attitude scores, and the results were found to not be significant at  $p < .05$  level [ $F(6.54) = 2.062, p = .073$ ], thus, the differences between mean scores from participants representing the different sports of choice in this sample are likely produced by chance as they did not achieve statistical significance

**Table 6:** Mean Scores for Mental Health Attitudes within Specific Sports

	N	Mean	SD
Swimming	7	73.86	12.048
Track	11	82.73	10.335
Soccer	8	87	10.502
Curling	5	87	11.203
Hockey	7	90.14	16.577
Rugby	5	76	6.442
Other	18	83.11	7.925

## 5) Multiple Regression Analyses

**5.1** A Multiple regression analysis was carried out for the dependent variable of *mental toughness* to answer the primary research question. The analysis uses the enter method to build a model to predict overall Mental Toughness by including the variables that were found to have a possible association with this variable (see Bivariate Analyses section, A model that explains 33.4% of the variance ( $R^2 = 0.334$ ,  $p = .000$ ) was found for mental toughness. Two factors were significantly associated with mental toughness, school attended (U Waterloo) and type of sport played. This model shows that those who reported playing hockey and curling and those from U Waterloo were significantly associated with higher scores of mental toughness. There was a negative association with playing soccer and mental toughness, in other words, with lower scores

**Table 7.** Multiple Regression for Mental Toughness Model Summary

Model	R	R Square	R Adjusted	Std. Deviation	Sig.
4	.578	.334	.298	4.732	.000

**Table 8.** Significant Model for Multiple Regression for Mental Toughness

	Model Number	Stand. $\beta$	T	Sig
Constant	4	-	38.977	.000
University of Waterloo	4	6.179	4.599	.000
Curling	4	8.342	3.610	.001
Hockey	4	5.614	2.603	.012
Soccer	4	-4.481	-2.152	.036

Assumptions of homogeneity of variances and normality of sample distributions were not violated.

**5.2** A multiple regression analysis using the enter method was conducted to build a model to predict overall Mental health attitudes (MHA). Nominal variables were transformed as dummy variables. Using variables that were found to have significant associations in the bivariate analyses, as described above which were expected to have an effect, such as how the ethnicity, sport being played and so on. A model that explains 33.8% of the variance ( $R^2 = 0.334$ ,  $p = .000$ ) was found for mental health attitudes. An inverse association was found between mental health attitudes and sport of choice - swimming. A positive association was found between school of choice (York U and Other) and race/ethnicity (Caucasian)

**Table 9.** Model Summary Multiple Regression for Mental Health Attitudes

Model	R	R Square	R Adjusted	Std. Deviation	R Square Change	Sig.
3	.581	.338	.291	.38690	.373	.000

**Table 10** Significant Model for Multiple Regression for Mental Health Attitudes

	Model	Stand. B	T	Sig
Constant	3	-	26.091	.000
York	3	16.098	3.427	.001
Other Universities	3	11.637	2.322	.000
Swimming	3	-9.987	-2.514	.015
Caucasian	3	6.697	2.322	.024

The results of the multiple regression analysis have answered the two research questions of this study. The answer to the research question of “*What are the factors associated with mental toughness for elite female athletes in Ontario?*” found mental toughness to be influenced by two main factors of sport of choice and university attended. Mental Health Attitudes was found to have associations in three different demographic areas of ethnicity, school of choice and sport of choice, which answered the second research question of: *What is the current standing in regard to mental health attitudes within elite female university athletes in Ontario?* The above findings will be discussed in the following chapter.

## Chapter 5: Discussion

This study examined the factors influencing the level of mental toughness and attitudes towards mental health on a sample of female university athletes in Ontario. While mental toughness and mental health have been often considered as contradictory discourses regarding the success and mental wellbeing of athletes (Bauman, 2016), the findings of this study offer a more conciliatory view of both frameworks as being both influenced by similar micro and mezzo level network systems surrounding a sample of female university athletes. In this sample, mental toughness was associated with type of sport practiced and attending school. Mental health attitudes were associated also with sport of choice, attending school, but also with race/ethnicity. Mental toughness and mental health attitudes were not correlated which confirm the views of both concepts as somewhat contradictory or representing different perspectives in the context of sports performance, while one focuses mainly on developing strengths, the other looks at support when these strengths are not in place. However, as the study findings shown both can be largely influenced by similar network systems. This section examines the findings of this study in the following direction: first, a discussion of the findings by each outcome variable. Then, implications for research, policy and advocacy, and practice are discussed. Finally, to conclude the thesis a limitations section, a self- reflection narrative and general conclusions are presented.

### *Micro and Mezzo systems related to mental toughness: Type of Sport and Attending School*

Athletes are involved in many different network systems (Mahoney, Gucciardi, Mallett, & Ntoumanis, 2014); the level of mental toughness in this study can be related to micro and mezzo network systems. Mental toughness appears to be associated with interactions individual athletes have within immediate social environments such as their teammates (Micro) from their

practicing sport, as well as the school culture and possible school supports for development of mental toughness (Mezzo). These two factors, school attended and sport of choice, account for 33.4% of the variance of mental toughness ( $R^2=.334$ ,  $p=.00$ ) which indicates that additional variables not considered in this study could be largely influencing participants' mental toughness. Other variables that could account for mental toughness scores would include support systems, prior experience and length of experience in competitive environments, university culture and use of individual coping mechanisms. Most importantly, on the overall, mental toughness scores in this sample fell just above the middle range of possible scores, so barely a passing grade, or in other words, *tough but not enough*. However, in regard to the type of sport practiced, playing hockey and curling was associated with higher levels of mental toughness. Mental toughness is an adaptive quality to the environment that athletes develop in. Thelwell and Weston (2005) study is congruent to the findings of this study as emphasised that the experience and environments athletes previously found themselves in are their formative steps of mental toughness development.

Macro systems were not assessed in this study but are nevertheless less important. Baker, Horton, Robertson-Wilson, & Wall's (2003) review looked at factors associated with attainment of sport expertise, and among other factors, they examined how cultural factors related with the development of expertise. Baker, et al, (2003) found that there is an importance placed in a particular sport within specific cultural contexts, and how this cultural view may strongly influence the achievement of success. The authors mentioned as examples the cultural importance of hockey as sport in Canada, in comparison to track and field in East Africa. Curling can be also a sport largely supported in many parts of Canada. Previous research on curling has also indicated that athletes who achieve success in curling are part of highly

cohesive team atmospheres that allow athletes to learn self-regulating skills (Collins & Durand-Bush, 2010). Therefore the positive correlation within this study between mental toughness and curling could be associated to participants having high team cohesion and positive self-regulation techniques as well as being a culturally endorsed sport

When looking at soccer and hockey, both considered team sports, findings for each sport were different. For hockey, previous studies have focused on the individual's level of mental toughness and ability to regulate their emotions within game play whereas the studies on female soccer players have primarily focused on team aspects and building team mental toughness as a whole. What this means for team sports is that there are possible multilevel factors influencing how the team or each individual develops mental toughness.

In regards of the mezzo system defined by school attended, in particular University of Waterloo was associated to higher scores of mental toughness; this could be related with many unidentified factors including services offered at the university, or that the sport programs at this university focus on fostering mental toughness in sports competition. These findings could have been moderated with chosen sport by University of Waterloo participants ( $n= 36$ ) as 54.3% ( $n= 20$ ) of them reported participating in an individual sport. Several studies confirm this tendency of strong mental toughness on different individual based sports, such as female divers (Coyle et al, 2017), cross country (Kristiansen & Roberts, 2010) and roller derby ( Madrigal, Wurst & Gill, 2016)

### ***Micro and Mezzo systems related to mental health attitudes***

In contrast to mental toughness, scores on attitudes towards mental health scores were somewhat 'high', ( $M= 83.05$ ,  $SD= 11.083$ ) which implies that athletes in this particular

sample were likely more receptive to talk about mental health and of seeking help. The overall higher scores could be related to female athletes experiencing greater growth likelihood to seek support in front adversity compared to men (Gerber et al, 2018). This would be consistent with Tamminen, Holt and Neely (2013) research which concluded that female athletes may experience greater growth after adversity, due to the fact that women are more likely to seek support following adversity compared to men.

Mental health attitudes in this sample were associated with sport of choice, school attending and race/ethnicity. An inverse association was found between mental health attitudes and sport of choice - swimming. A positive association was found between school of choice (York U and Other) and race/ethnicity (Caucasian). Similarly to? for mental toughness we see here the interplay of micro (type of sports chosen, ethno-racial identity) and mezzo (attending school) systems on how mental health is perceived. In terms of school attending and the high scores for all institutions, these findings may reflect the rising awareness in sport culture about mental health and could be influenced by changes in the environment of athletes where they are now fostering more safe spaces to ask questions and to receive assistance for mental health needs (Bauman, 2016). Participants who identified either going to Wilfrid Laurier University (M=73.17) or University of Waterloo (M=80.92) indicated lower scores for mental health attitudes compared to other schools (Table 7) though all differences between scores achieved statistical significance. Lower mental health attitude scores indicate a decreased willingness to accept help and a higher perception of mental health as a problem (Bedaso, et al, 2016.). One possibility will be that scores from students at these schools are below the high mean achieved by the entire sample (M= 83.05) but not necessarily representing extremely low scores. Additional research is certainly needed to examine school-specific factors that influence

openness to mental health discussions and help. Furthermore, participants who indicated swimming as their sport of choice also reported lower scores on mental health attitudes which can be due to higher demands on the individual to perform, and absence of peer support as this is mainly an individual sport. The association of high scores of mental health attitudes with a self-identified ethno-racial identity as Caucasian, needs to be taken with caution as may simply reflect that the majority of the sample (69.4 % ) identifies within this category.

The overall high scores on positive attitudes to mental health indicate however that there has been a shift in the sports environment which has become more open to discuss mental health concerns (Bauman, 2015). This has created a new culture of sport and mental health as *happier* and *healthier* (Bauman, 2015, p.1), replacing the old culture of ignoring and hiding mental health concerns in sports. However, when Elsenber, et al (2009) researched the connection between mental health attitudes and help seeking behaviour, they found that those who reported having a higher level of perceived stigma reported no general change in help seeking behaviours. This result indicates that despite stigma around mental health difficulties, those who needed help did not let their stigma prevent them from seeking support as they needed it. The relationship between mental health stigma and help seeking behaviours is an area of research that needs to be addressed in regard to female university athletes in specific contexts, such as school attended and practicing sport.

### **The Known and Unknown in Knowledge of Mental Toughness**

One of the major gaps identified in the literature was the lack of research regarding sports and mental toughness in Canada, even if related to male athletes. This study took an expanded approach by asking on the survey fifteen questions about mental toughness, in order to evaluate

participants' mental toughness in four key areas. The findings, however, are not consistent with Tamminen, Holt, Nelly (2013), who concluded that athletes tend to rate themselves high in mental toughness because they relate mental toughness to growth after adversity, and mental toughness as not being weak. Given that the mean score did reach barely mid-level ( $M=48.89$ ) it is reasonable to conclude that many of the participants in this study did not score themselves high in all areas of mental toughness such as self-reported determination ( $M=11.11$ ), self-belief ( $M=14.40$ ), positive cognition ( $M=14.05$ ), and visualization ( $M=9.73$ ) after an adverse event.

While mental toughness scores were generally moderate, two interesting discussion points should be considered. First, the presence of outliers in the distribution of this variable (Figure 6) indicates that a high number of participants rated themselves below or above the mean resulting in a skewed data set that does not show a normal distribution. From a theoretical perspective, the scores on mental toughness from this study lead to further research questions using both qualitative and quantitative methods, for instance, how an athlete develops their mental toughness or how athletes define mental toughness? What are additional protective factors and risk factors? And what factors contribute to the success of an athlete when faced with adversity?

There are indeed many multidimensional factors that can influence the development of an athlete's mental toughness as indicated in previous research and consistent with this study theoretical framework. For instance, Holt, et al (2008), suggested looking at a person's physical development through the relationships in their systems, to promote maximum improvement in outcomes of mental toughness from an ecological systems perspective. These authors identified coping skills and attitudes as part of the microsystem of athletes. To further the results of this study, Sorensen, Schofield and Jarden (2016) research provided evidence that the multi level

systems that athletes are involved in provided unique factors that develop or hinder the development of mental toughness. As shown in this study the factors of sport of choice and school of choice were both factors influencing total mental toughness scores. These systems could also include mezzo systems of coaches, parents, medical staff, high performance staff and athletes non sport related friendships in order to gather a clearer picture of the effects sports has on a person's daily living and immediate networks (Sorensen, Schofield, & Jarden, 2016; Holt, 2008). Further work could look at components of mezzo systems such as sport-specific culture and how that affects help seeking behaviour (Mahoney, et al, 2014). Finally, the macrosystem that sports are involved, such as national sporting environments, social media and public opinion could also add to the results of this study.

Within this study it was found that the type of sport based on presence or absence of a team format (Individual vs. Team) did not have a significant effect on mental toughness scores. This was congruent with previous studies such as Guillén and Laborde (2014) who found that no significant difference in mental toughness scores exist between participants who play team sports vs. individual sports. However, a recent review by Purcell, Gwyther and Rice (2019) suggests that within individual sports, athletes are less likely to seek help in front of competition stress or other stressors affecting their sport performance thus possibly lessening the potential of a well-developed mental toughness. The lack of conclusive findings on the influence of a single system level or factor on mental toughness is congruent with the study's ecological systems perspective that no singular system accounts for outcomes but rather how systems interact with a particular individual, in this case with female athletes.

**Other Predictor Variables: Age, gender, and race/ethnicity**

All participants in this study identified themselves as female; therefore, gender as variable was not used for correlation or regression analysis. It should be noted that the mean score for mental health attitudes  $M= 80.05$ , was higher than expected; this could be due to being all participants being female athletes, and women are reported to be more willing and accepting of external help when they are faced with mental health challenges (Gerber, et al, 2018). This higher level of acceptance of mental health difficulties and help by women could therefore be the influencing force for the higher mean.

Age and race/ethnicity were expected to be key associated variables. This association suggests that those who identified as being of Caucasian decent also identified as being more open to talk about mental health and more receptive to help seeking behaviour such as going to a social worker or talking to team coaches when they are experiencing mental health challenges. It should be noted that the group within race/ethnicity approaching significance for mental health attitudes was “Race/Ethnicity- Caucasian” ( $M=83.56$ ). This finding should be considered with caution as within this study the category of Race/Ethnicity- Caucasian represents the majority of participants. Due to the high number of individuals that identified in this sample as Caucasian, it is possible that this study did not collect enough demographically diverse data to accurately allow for analyzing of more factors associated with mental health attitudes. The second highest reported race/ethnicity was “Asian”, as this category approaches significance when running the multiple regression analysis for mental health attitudes ( $p=.065$ ). It should also be noted that with higher participants from this race/ethnicity, it is possible that an association could exist.

In regard to age those with more extended periods of experience within the varsity sports were expected to have higher mental toughness scores (Cumming et al, 2012; Darvishi, Marati &

Amirpour, 2015). Using bivariate analysis and multiple regression analysis, age as variable was not shown to have an association with mental toughness or mental high attitudes.

The findings from this study are also congruent with previous research indicating that age was not a significant factor in the development and/or maintenance of mental toughness for athletes (Bulent, Ugur & Ozkan, 2017). Due to lack of ethno-racial diversity among participants within this study it is difficult to conclude from this data the significance that race/ethnicity could play in the development and maintenance of mental toughness in female athletes.

Results of this study add to a growing body of research that has highlighted that age is not a key factor in the development and maintenance of mental toughness. To expand this study and get a better understand of what role race/ethnicity plays in the development of mental toughness a large and more diverse sample must be obtained.

### **Implications for Research**

There are several implications for future research based out of this study. The first is to deepen the knowledge of how female athletes define mental toughness. Within this study there was no space for participants to self define their own understanding of mental toughness. In the context of this study, there is a potential that participants did not have a clear or consistent definition of mental toughness or mental health attitudes and therefore the results should be interpreted with caution. Future research could address this by asking participants to first define mental toughness themselves – something that has not previously been done – and looking for consistencies or inconsistencies between participant-generated definitions and the literature. Secondly, since no strong associations of factors influencing mental health attitudes or mental toughness were able to be found based on the variables in this study, future research should look

to expand the types of variables. This fits well within a theoretical systems perspective, as other variables from micro, macro or mezzo systems not identified in this study, could be influencing both the level of mental toughness and/or attitudes towards mental health as indicated by the multiple regression analysis only explaining 33% of the variance for mental toughness and 37.3% of the variance for mental health attitudes. For example, at mezzo level, other predictive factors should be looked at such as peer groups or involvement in sports, family support systems, or micro level such as previous mental health difficulties and the mental health culture at participants' specific University. A glimpse of these influences has been captured in this study but having enhanced specificity would allow for more solid conclusions and more targeted implications.

As well, future research should consider other potentially influencing variables such as previous history of injury/mental health challenge, family support and program of study at university in addition to re-exploring some of the factors that showed trends in this study. Russel and Tracey's (2011) research touched on the topic of injury and the psychological aspects, when athletes do get injured more attention needs to be paid to the psychological aspects of the injury.

This study looked at athletes' self-reported mental health attitudes and mental toughness. Therefore, research implications for this study also suggest that universities and youth athletic departments need to conduct research aiming to build a *wellbeing framework for athletes*. Within this wellbeing framework, mental health literacy should be a top priority, without the vocabulary to describe what is happening within their mental health, athletes will not be able to seek the help they need or put positive coping mechanisms into place. A necessary inclusion in a mental health framework should be risk and gender-sensitive protective factors for athletes, as knowing these

factors for individual athletes will help with early detection preventing burnout or distress and career interruptions.

This research study was primarily focused on athletes' self-report. This research highlights the complex factors that develop an athletes' mental toughness. This study contributed to greater research about the micro and mezzo systems that play a key role in an athletes' development and maintenance of mental toughness. The factors that influence a female athletes' mental toughness can be further developed in future research focused on immediate network such as coaches, parents and team members supporting athletes. Some inquiries to answer in this context will be: What happens when someone is concerned about an athlete? What is the protocol for reporting?

### **Implications for Policy**

This research sits at the interdisciplinary intersection of diverse fields such as social work, psychology, and kinesiology. As such, social workers should look for direction on potential support policies and practices for female university athletes and enhanced participation in such support services. The findings of this study support enhanced services based on individual counselling specific to sport and peer support. The study showed very few significant connections to mental health attitudes; therefore, the focus on individual interventions should be on enhancing mental toughness through positive coping skills and emotional regulation when athletes are competing. For peer support, the results of this study indicate it is not just a single individual at a school that is dealing with challenges to their mental health so peer support can be enhanced within universities through having mentorship programs or enhancing team dynamics through team building activities outside of the chosen sport. Finally, university and sport-specific

approaches should be considered as vital building blocks to successful competitive female athletes.

With the realm of physical education and kinesiology, Russell and Tracey's (2011) research noted a need for increased awareness for athletic therapists to understand the psychological implications of injury on athletes. Therefore, for policy within universities, it is important that all staff, coaches, and therapists understand mental toughness and the impact that injuries have on athletes. Russell and Tracey (2011) recommend education from athletic therapists to athletes about the duration of rehabilitation, and the possible effects of performance when first returning to play.

Within individual universities it is necessary to take a look at school culture around mental health, for example, what services are being offered. A needs assessment could be conducted at universities, to investigate mental health culture for students, athletes and leadership, looking at what barriers to services and stigma is present at a mezzo level within individual universities.

The biggest implication for direct social work practice is that social workers themselves need to be educated on the culture of sports and the stigma within sports culture related to help seeking behaviours, given that social work training gives an overall and generalist overview of mental health (Kourgiantakis et al., 2019). Social work students are often tasked with getting experience of mental health challenges within practice and seeking supervision or professional development for more knowledge of mental health (Kourgiantakis et al., 2019). The findings of this study also show signs for cautionary application of the gender binary model that services often work in and the effects that this gendered based model creates for female athletes who try

to fit into a masculine model of athletic body at the same time as maintaining their feminine qualities, while being careful to not succumb to societal standards of “*thin ideal*”.

### **Implications for Advocacy and Practice**

This study represents a small group of Ontario universities, so the implications of this research can include assessing for funding gaps, health inequalities as high-income environments often have access to more support, and the need for comprehensive response and report of the gendered needs of individual athletes in specific contexts. Social workers and other helping professionals may benefit from background information before meeting an athlete, where they are at can help get them back to that level of performance that the individual strives for, as referenced in Bauman(2015) and Romer and Bock’s (2008) studies about taking an individual approach to mental health care when dealing with athletes. However, since some of the implications are outside of social work’s usual field of practice or area of expertise, such as counselling, this section also includes potential areas for advocacy work. Programming directions should primarily focus on education. Since no protective factors (i.e., specific personality factors or support system) were identified, any initiatives for education in this area should be wide and far reaching to young females in sport thinking about competing at higher levels (i.e., varsity). From a macro-system perspective an important advocacy area is to foster the accessibility to practice sports to students and overall young people experiencing income inequalities and other type of societal marginalization.

With the spotlight on athletes’ mental health in professional sport this is an opportunity for female athletes to speak out about the unique challenges they face as they age in their respective sports, and how professional associations can better support athletes. For example, the

campaign against sports corporation Nike, for the lack of support regarding the female body (Cain, 2019), eating restriction and postpartum depression (PPD), is only the start of the challenges uniquely faced by elite female athletes. Nike has previously been known for discouraging their female athletes from getting pregnant, citing if they are unable to perform or need to take maternity leave, they would no longer be paid by Nike (Handley, 2019). This means a large gap will exist with young females in high school aspiring to make it big in their chosen sport, who are unequipped with the tools for maintaining their mental health alongside their physical health.

Further to the creation of stronger female sport figures, there should also be support and education for both coaches and parents in implementing or having discussions about the importance of mental health in sport. Therefore, while young females are seeing stronger female athletes being honest about their mental health, an excellent step is to make parents and coaches knowledgeable and comfortable to speak about mental health in sport.

The NBA recently adopted a new rule that a team must have a full-time mental health staff for the 2019-2020 season (Shama, 2019). With this change in culture to recognize mental health in the NBA, the same change should happen in the WNBA and other female semi pro or pro leagues. Using a relational cultural therapy approach, Trepal, Boie, and Kress (2012) study indeed emphasized understanding the importance of culture and relationships through reconnection the disordered eating is addressed. Trepal et al (2012) study compliments this research study by showcasing the importance of an individual approach to mental health treatment that nurtures the relationships between the athlete and those who they are seeking help from, with the focus on interpersonal context of the athlete's life.

This research study has provided new insights for the need for advocacy at all systems levels of varsity female sports. There is growing awareness about mental health and the effects it has on athletes' performance and daily activity. This awareness should now shift to action where on organizational, national, and international levels there is conversation about access to mental health services and the need to take care of mental health along with physical health.

### **Limitations**

Several limitations have been identified for this study. These include the small sample size, non-probabilistic sampling strategies, limited reliability of research instruments, and the simplification of mental toughness definition. This section discusses these limitations in more detail.

The small sample size is the first limitation of the study, due to starting with  $n=65$  participants, and after data cleaning having only 60 usable responses. With this sample size the results of this study only capture a small percentage of university female athletes in the population sample and preclude any generalization from these findings. Furthermore, the non-normal distribution of mental toughness scores as mentioned above created limitations of whether the data could recognize some of the factors that influence mental toughness in this sample. The cross-sectional design of the study also limits the examination of the effect of passage of time in the responses of participants. In addition, the small sample size of the study precludes for more complex statistical analyses that examine reciprocal, or multi-factorial relationships between variables.

As with any opt-in survey, there will be a self-selection bias involved in the sampling strategy. It is likely that those who responded to the survey may be more interested in the topic

and therefore better informed about it, causing the results to be skewed from the reality of the general population. As noted, a high percentage of students from the University of Waterloo responded to the survey; this could be due to interest in the topic or that they received the survey from their athletic director at the opportune start of the Fall Reading week in 2019. The limitations of gender and age specific sampling criteria of the study were also conducive to non-inclusive findings and recruitment.

Generally, those studying at any university may be less representative in terms of provincial levels of diverse ethno-cultural background and/or of levels of income. Within university data, it is near impossible to fund ethno-culturally based data or level of income (NSSE, 2020). It is also not representative of the general community in southern Ontario, particularly given its age boundaries and requirement to be a university student. As well, a lack of cultural diversity could limit the scope of the results because, as mentioned previously, perceptions around mental health and mental toughness could be heavily influenced by cultural norms, in this case, influenced by a sample of mainly middle class Caucasian female students

Lastly, with a recruitment strategy that relied heavily on email and social media networks, there is a possibility that athletes did not receive the survey or that due to heavy demands of school and balancing sport and work they were unable to complete the survey. Furthermore, given that it is a survey based on predetermined answers (e.g., multiple choice), it did not allow for all the nuances of the lived experiences of the participants which could have been complemented with a qualitative component. This limits its ability to make an all-encompassing understanding about how people understand mental toughness and what mental toughness characteristics they possess in this study. An additional limitation is the potential social desirability in answering the questions; it is suggested for future studies to control for this

crucial factor. Despite these limitations the study contributes to the scarce interdisciplinary literature on how female university athletes in Ontario, Canada perceive mental health and mental toughness.

## Chapter 6: Conclusion

This study looked at factors influencing mental toughness in female athletes of Ontario and their self-reported attitudes towards mental health. Despite being a dominant discourse when considering athletes' success, knowledge about mental toughness in female university athletes in Canada is relatively scarce, as outlined in the literature review. The findings of this study indicate that there are several contributing factors such as the sport choice of participants as well as school of attendance which influence self-rated mental toughness. However, in this study, it seems that mental toughness was not connected to a specific age or ethno-racial group. Similarly, mental health attitudes were related to attending school and sports of choice but also with ethno-racial identity.

Interdisciplinary literature on female university athletes in Canada is scarce, so this study contributes to the broader literature on mental toughness and mental health attitudes in sport participants and opens the door to further research in how to foster well-being in future female athletes. This study adds to previous research on Canadian athletes' mental toughness and sport participation such as Baker, Yardely and Cote, (2003), Beauchamp, Harvey and Beauchamp, (2012); Hardy, (2014), and Madrigal, Wurst and Gill, (2016) studies.

Opportunities for advocacy within individual universities are plentiful, as this research points to each student needing an individualized approach to their academic and sport specific goals. Those who are closest to athletes e.g. coaches, trainers and parents should therefore educate themselves on the early warning signs of mental health challenges as it relates to sports, as often it is found that athletes will continue to train due to fear of stigma or loss of competitive edge if taking time off.

Future research and mental health programming should focus on expanding into other factors such as peer groups, family support, and previous experience of mental health and acceptance of mental health challenges in sport. Opportunities for advocacy are plenty, with changes being necessary within sport culture, the education system, and with how the media reports on female athletes. Furthermore, social workers must educate themselves regarding mental toughness in sport, physical and emotional demands of sport at an elite level such as university in order to be effective clinical and community practitioners.

Considerable progress has been made on interdisciplinary discussions about mental health, body image and female athletes over the last several years, as indicated by Kilgore (2019). Beginning the conversation of what is mental toughness can help dismantle the concept of help seeking behaviour as weak in sports (Handley, 2019; Cain, 2019). The time is now to be educated and to advocate for the changes necessary to create supportive systems and a sport culture in which female athletes are just as supported as male athletes.

# Appendix A: Ethics Approval



**D** do-hot-reply-laurier@researchservicesoffice.com <do-hot-reply-laurier@researchservicesoffice.com>  
2019-09-24 10:20 AM  
To: Trotter, Kerrie(Principal Investigator) Cc: Suarez, Eliana(Supervisor); reb@ulucq; do-hot-reply-laurier@researchservicesoffice.com

September 24, 2019  
Dear Kerrie Trotter  
REB # 6247  
Project, "Ontario Female University Athletes Perceptions on Mental Health"  
REB Clearance Issued: September 24, 2019  
**REB Expiry / End Date: May 31, 2020**

The Research Ethics Board of Wilfrid Laurier University has reviewed the above proposal and determined that the proposal is ethically sound. If the research plan and methods should change in a way that may bring into question the project's adherence to acceptable ethical norms, please submit a "Request for Ethics Clearance of a Revision or Modification" form for approval before the changes are put into place. This form can also be used to extend protocols past their expiry date, except in cases where the project is more than four years old. Those projects require a new REB application.

Please note that you are responsible for obtaining any further approvals that might be required to complete your project.

Laurier REB approval will automatically expire when one's employment ends at Laurier.

If any participants in your research project have a negative experience (either physical, psychological or emotional) you are required to submit an "Adverse Events Form" within 24 hours of the event.

You must complete the online "Annual/Final Progress Report on Human Research Projects" form annually and upon completion of the project. ROMECO will automatically keep track of these annual reports for you. When you have a report due within 30 days (and/or an overdue report) it will be listed under the "My Reminders" quick link on your ROMECO home screen, the number in brackets next to "My Reminders" will tell you how many reports need to be submitted. Protocols with overdue annual reports will be marked as expired. Further the REB has been requested to notify Research Finance when an REB protocol, tied to a funding account has been marked as expired. In such cases Research Finance will immediately freeze funding tied to this account.

All the best for the successful completion of your project.

(Useful links: [ROMECO Login Screen](#); [REB Students Webpage](#); [REB Connect Webpage](#))

Yours sincerely,

Jayne Kainnar, PhD  
Chair, University Research Ethics Board  
Wilfrid Laurier University

Please do not reply directly to this e-mail. Please direct all replies to [reb@ulucq](mailto:reb@ulucq)

## Appendix B: Letter to Athletic Directors

Hello \_\_\_\_\_ Athletic Director at \_\_\_\_\_ University

My name is Kerrie Trottier, and I am Master of School work student at Wilfrid Laurier University. I am conducting my master level thesis project. I am contacting you because I am looking to conduct survey research on University level female athletes, and I am looking for participants. I am conducting a study that looks at mental health perceptions and mental toughness of female athletes.

The surveys are completely confidential, I am using an online survey system to collect data, it is called Qualtrics, and results may be used to enhance mental health services for university level female athletes in Ontario.

Participation in this study involves filling out an online survey, which will take between 20 to 25 minutes. The project has been reviewed and received ethics clearance through Laurier Research Ethics board (##6247)

Please feel free to contact myself at [trot4730@mylaurier.ca](mailto:trot4730@mylaurier.ca) or my research supervisor Eliana Suarez at [esuarez@wlu.ca](mailto:esuarez@wlu.ca) if you have any questions or concerns.

If you are able to provide the link to the research survey, please let me know and I will pass it along right away

Sincerely,

Kerrie Trottier

## **Appendix C: Introduction to Survey and Survey**

### **Female University Athletes' Perception of Mental Health**

#### **Introduction**

This research looks to gain understanding of mental health in female identified student athletes, 30 years of age or younger, at a varsity level.

This research looks at female identified student athletes, 30 years or younger, understanding about mental health at a varsity level athlete. Furthermore, this research will contribute to knowledge about female mental health as an athlete. The principal investigator is Kerrie Trottier, a Master of Social Work candidate at Wilfrid Laurier University, and her advisor is Dr. Eliana Suarez. Kerrie can be contacted at trot4730@mylaurier.ca and Dr. Suarez at esuarez@wlu.ca for any questions or concerns regarding this study. Wilfrid Laurier's Research Ethics Board (#6247) have approved this study. The principal investigator will do everything possible to keep your data confidential, although using a third-party online survey, confidentiality cannot be fully guaranteed. At the end of the survey, you will have the opportunity to disclose your contact information through a separate link if you wish to be included in research updates, given an answer key, and to participate in a draw for a participation prize. Two prizes will be awarded, the prizes will be gift cards for Tim Hortons. Please read the full consent form on the next page and save a copy for your records. Counselling: This study is about experiences of resilience, toughness, and mental health and may bring up uncomfortable feelings or past experiences. If you are feeling uncomfortable, distressed, or just need to talk to someone, you are encouraged to contact any of the following resources: \*\*\* SEE BELOW \*\*\*

#### **WILFRID LAURIER UNIVERSITY INFORMED CONSENT STATEMENT**

“FEMALE UNIVERSITY ATHLETES' PERCEPTION OF MENTAL HEALTH” Study Kerrie Trottier, Master of Social Work student, Principal Investigator; Dr. Eliana Suarez, PhD, RSW, Associate Professor, Advisor. You are invited to participate in a research study. The purpose of this study is to describe female athletes in Ontario varsity level sports mental toughness and perceptions of mental health.

The purpose of this study is to describe the mental toughness and perceptions of mental health in female athletes in Ontario varsity level sports

#### **INFORMATION**

This study is an electronic survey consisting of 40 items. spanning 15-20 minutes to complete, not including demographic questions. This will consist of 100-200 participants. The survey will ask you some demographic questions and questions about mental health. Data will be collected anonymously and analyzed by the Principal Investigator. Participants, such as yourself, can opt to be made aware of any progress and future conclusions of the research. Data Collected from

this survey will be kept for 5 after this study has concluded information will be kept on a password protected USB, which will be stored in a safe at the residence of the principal investigator.. Participants are current varsity athletes “as deemed by their post secondary institution”, 30 years old or younger, in any discipline and competing in any sports. You have been invited to complete this survey because you are a current athlete at an Ontario university.

### RISKS

While this study is designed to focus on your understanding and feelings associated with mental health, as well as your own personal experience with mental toughness, there is a possibility that it could mention uncomfortable experiences and memories. Participants have the right to not answer any questions within the survey. Furthermore, all data will be presented as aggregated data and not on an individual basis. As such, a list of resources such as counselling and support programs will be given at the end of the survey. We encourage you to use these services if you are feeling uncomfortable or distressed. Furthermore, you may choose to withdraw from the survey at any time, for any reason, without penalty.

### BENEFITS

This research will contribute to the discussion on resilience and toughness of female athletes and to inform mental health services for athletes in Ontario. This research may influence changes for university programming or other educational programming. Therefore, you have an opportunity to contribute with this very impactful work. Moreover, this survey may increase your own understanding of mental health and resiliency.

### CONFIDENTIALITY

All data will be kept on a password-protected computer, within a password protected document folder. Participants’ contact information for research updates will be collected through a separate link and will not be linked to any participant responses, therefore responses will be anonymous. Even if Qualtrics, the survey hosting service, makes available individual IP addresses, this information will not be used. The raw data will be destroyed upon completion of this project and contact information will be destroyed after the draw. The only individuals who will have access to the raw data will be the Principal Investigator and the Advisor. Since the data is being collected via a third-party online survey, full confidentiality cannot be guaranteed. Participants have the right to not answer any question and that all data will be presented as aggregated data and not on an individual case basis.. Results will be incorporated into the Principal Investigator’s Master’s thesis. Summaries of the results will also be distributed to those participants who choose to be updated on the outcome of the research.

### COMPENSATION

All participants who complete the survey will be entered into a draw to receive one of two gift cards. The odds of winning are approximately 1 in 100. Winners will be determined by random name draw through an online database and will be notified by email by June 8<sup>th</sup>.

## CONTACT

If you have questions at any time about the study or the procedures, or you experience adverse effects as a result of participating in this study, you may contact the researcher, Kerrie Trotter [trot4730@mylaurier.ca](mailto:trot4730@mylaurier.ca), or Dr. Suarez at [esuarez@wlu.ca](mailto:esuarez@wlu.ca). This project has been reviewed and approved by the University Research Ethics Board (#6247). If you feel you have not been treated according to the description in this form, or your rights as a participant in research have been violated during the course of this project you may contact Janye, PhD, Chair University research ethic board, Wilfrid Laurier University, (519)884-1970, extension 3131 or [REBCHAIR@WLU.CA](mailto:REBCHAIR@WLU.CA).

## PARTICIPATION

Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at any time without penalty and without loss of benefits to which you are otherwise entitled. If you withdraw from the study, every attempt will be made to remove your data from the study, and have it destroyed. You have the right to omit any questions you choose. Results may also be presented as a part of research presentations at conferences or forums. Results will also be distributed to those participants who choose to be updated on the outcome of the research. There will be an option to provide your email address for such updates at the end of the survey. Updates will be available in early 2020.

## MENTAL HEALTH RESOURCES

### **CAMH**

416-535-8501 (GTA)

1 800-463-2338 (Toll Free)

### **Crisis Line**

Within Ottawa: 613-722-6914

Outside of Ottawa: 1-866-996-0991

### **Distress centre of Toronto**

416-408-4357

[www.toronotdistresscentre.com](http://www.toronotdistresscentre.com)

### **Distress Centre of Ottawa and Region**

[ww.dcottawa.on.ca](http://ww.dcottawa.on.ca)

613-238-3311

### **Distress Centre Niagara**

[www.distresscentreniagara.com](http://www.distresscentreniagara.com)

St. Catharines, Niagara Falls & Area 905-688-3711, Port Colborne, Welland, Wainfleet & Area 905-734-1212, Fort Erie & Area 905-382-0689, Grimsby, West Lincoln & Area 905-563-6674

### **National Crisis Line**

1-833-456-4566

### **Waterloo Region Suicide Prevention Council**

844-437-3247

### **Mobile Crisis Line:**

905-278-9036 or 1-800-363-0971

**Survivor Support Program:**

416-595-1716

**Canadian Association for Suicide  
Prevention**

204-784-4073

**Distress and Crisis Ontario**

416-486-2242

**Ontario Association for Suicide  
Prevention**

647-525-6277

**Ontario Shores Centre for Mental Health  
Services**

1-800-341-6323

**[www.Ementalhealth.ca](http://www.Ementalhealth.ca)**

- Resources
- Crisis information

### CONSENT

I have read and understand the above information. I have received a copy of this form. I agree to participate in this study. Please print or save a copy of this page for your records and for future reference.

I agree - participate in survey (1)

I disagree - do not participate (2)

### Survey Questions

1. What is your age? \_\_\_\_\_

2. What is your gender? \_\_\_\_\_

Woman (1)  Trans (2)  None of the above. I prefer to identify as: (3)

\_\_\_\_\_

3. How do you best describe your racial and/or cultural ethnicity? \_\_\_\_\_

4. What is your highest level of education completed?

High school or equivalent (1)

Trade or apprenticeship (2)

College diploma (3)

University degree - bachelor (4)

University degree - master (5)

University degree - doctorate (6)

Other (please specify): (7) \_\_\_\_\_

5. What is your level of education that you are currently in the process of completing?

University degree - bachelor (1)

University degree - master (2)

University degree - doctorate (3)

Other (please specify): (4) \_\_\_\_\_

6. Which university are you currently or most recently a part of: \_\_\_\_\_

7. What sport(s) are you playing at a university level currently? \_\_\_\_\_

### Mental Health Attitudes

1. Most people would willingly accept someone who has received mental health treatment as a close friend.

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

2. Most people believe that a person who has received mental health treatment is just as intelligent as the average person.

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

3. Most people believe that someone who has received mental health treatment is just as trustworthy as the average person.

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

4. Most people would accept someone who has fully recovered from a mental illness as a teacher of young children in a public school.

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

5. Most people feel that receiving mental health treatment is a sign of personal failure.

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

6. Most people would not hire someone who has received mental health treatment to take care of their children, even if he or she had been well for some time.

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

7. Most people think less of a person who has received mental health treatment.

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

8. Most employers will hire someone who has received mental health treatment if he or she is qualified for the job.

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

9. Most employers will pass over the application of someone who has received mental health treatment in favour of another applicant.

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

10. Most people in my community would treat someone who has received mental health treatment just as they would treat anyone.

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

11. Most young adults would be reluctant to date someone who has been hospitalized for a serious mental disorder.

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

12. Once they know a person has received mental health treatment, most people will take that person's opinions less seriously.

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

13. My parents would not let me marry someone who has mental illness or has a family member with mental illness because they are not suitable for marriage

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

14. Mental illness is viewed as a poor reflection of my family and ancestors

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

15. People who have mental illness are possessed by supernatural entities such as demons or spirit

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

16. People with mental illness are considered to be crazy

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

17. It is considered 'shameful' to speak to someone outside of my family about my problems

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

18. I am afraid of what my family or friends will say or think of me if I seek counseling/therapy.

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

19. The mentally ill are a burden on society.

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

20. Mental illness is an illness like any other.

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

21. More tax money should be spent on the care and treatment of the mentally ill.

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

22. The best therapy for many mental patients is to be part of a normal community

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

23. A woman would be foolish to marry a man who has suffered from mental illness, even though he seems fully recovered.

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

24. There is something about the mentally ill that makes it easy to tell them from normal people.

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

25. As far as possible mental health services should be provided through community-based facilities.

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

26. No one has the right to exclude the mentally ill from their neighbourhood

Strongly Agree                      Agree                      Neutral                      Disagree                      Strongly Disagree

**(Taylor, & Dear, 1981)**

### Mental Toughness

27. The goals I have set for myself as a player keep me working hard

Almost Never      Seldom      Sometimes      Often      Almost always

28. I do not have to be pushed to play or practise hard. I am my own best igniter

Almost Never      Seldom      Sometimes      Often      Almost always

29. I am willing to give whatever it takes to reach my full potential

Almost Never      Seldom      Sometimes      Often      Almost always

30. I lose my confidence very quickly

Almost Never      Seldom      Sometimes      Often      Almost always

31. I can keep strong positive emotion flowing during competition

Almost Never      Seldom      Sometimes      Often      Almost always

32. I am positive thinker during competition

Almost Never      Seldom      Sometimes      Often      Almost always

33. My self talk during competition is negative

Almost Never      Seldom      Sometimes      Often      Almost always

34. I can clear interfering emotion quickly and regain my focus

Almost Never      Seldom      Sometimes      Often      Almost always

35. Playing this sport gives me a genuine sense of joy and fulfilment

Almost Never      Seldom      Sometimes      Often      Almost always

36. I can change negative moods into positive ones by controlling my thinking

Almost Never      Seldom      Sometimes      Often      Almost always

37. I can turn crisis into opportunity

Almost Never      Seldom      Sometimes      Often      Almost always

38. I mentally practise my physical skills

Almost Never      Seldom      Sometimes      Often      Almost always

39. Thinking in pictures about my sport comes easy for me

Almost Never      Seldom      Sometimes      Often      Almost always

40. I visualize working through tough situations prior to competition

Almost Never          Seldom                  Sometimes      Often                  Almost always

(Sheard, 2009; Golby, Sheard & van Wersch, 2007)

Is there anything else you would like to share in regard to the topics examined in the survey?  
(250 words)

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