

Understanding Student-Athlete Mental Health Problems: Knowledge, Experiences, and

Management

by

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### Abstract

Compounding athletic and academic demands may put student-athletes at an increased risk of developing mental health problems. Few studies have examined the mental health experiences of student-athletes in Canada using both quantitative and qualitative methods. In two studies, this dissertation (1) assessed the scope and severity of mental health problems and factors associated with mental health problems (study 1), (2) qualitatively explored the impact of the sport context on student-athletes' mental health experiences, knowledge, and management strategies (study 2), and (3) examined the impact of COVID-19 on student-athletes' mental health (studies 1 and 2). In Study 1, student-athletes completed an online survey at three timepoints in their athletic season (September 2019 (T1; N = 140), February 2020 (T2; N = 18) and May 2020 (T3; N = 28)). Data from T1 and T3 were utilized due to significant missing data at T2. Participants were members of a central Canadian university sports program for the 2019-2020 season. At T1 (N = 140), nearly half of the sample exceeded the clinical cut-off on one or more measures. Approximately half of the sample reported significant depressive, anxiety, and distress symptoms and nearly 40% exceeded the clinical cut-off for probable PTSD. Mental health literacy (M = 2.76, SD = .90) was low to moderate, and positively related to anxiety and having received a past mental health diagnosis. Only disordered eating symptoms were significantly different between T1 and T3 ( $p = .05$ ). Qualitative findings helped to contextualize these results. In Study 2, student-athletes (N = 7) with clinically significant distress (> 12 on the Kessler 6-Item Distress Scale) completed individual virtual semi-structured in-depth interviews. Using an Interpretive Description analytic approach, the overarching theme, "The Athlete Identity: The Tensions in Upholding Athlete Standards" underscored participants responses and described the

implicit expectations that athletes were expected to uphold. In addition to this overarching theme were four main themes: “Shaping Identity”; “Navigating the Complexities of Disruptions to the Athlete Identity”; “The Struggles with Struggling: Making Sense of Mental Health”; and “Reconciling Mental Health and The Athlete Identity”, that described the challenges with managing mental health in a competitive sport context. Findings from this dissertation inform clinical interventions to address mental health in sport. Implications regarding the assessment and management of mental health symptoms in sport are discussed.

*Keywords:* mental health, student-athletes, mental health literacy, Interpretive Description, COVID-19

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### Dedication

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Understanding Student Athlete Mental Health Problems: Knowledge, Experiences, and  
Management

**Chapter 1: General Introduction**

Mental health problems are increasing among the general adult population and typically emerge during early adulthood (Twenge, 2015; Twenge et al., 2010; World Health Association (WHO), 2017) when many young adults are starting university. Transitioning to university poses unique stressors for young adults including moving from high school to university, financial strain, changes in activities and social networks, social isolation, identity exploration, and increased academic demands that can worsen mental health (Frenette & Zeman, 2021; Van Slingerland et al., 2018). Student-athletes, who fall within the young adult age category, have traditionally been considered at a relatively low risk for mental health problem given their engagement in regular physical exercise and elite athlete status (Van Slingerland et al., 2019). However, a growing body of literature suggest that student-athletes are susceptible to the development of common mental health problems (Reardon et al., 2019). Indeed, student-athletes face sport-specific factors (e.g., injury and failed or poor performance) combined with academic, financial, and relational stressors that may increase their vulnerability to developing mental health problems (Moreland et al., 2018; Van Slingerland et al., 2018). However, few empirical studies have examined the scope of common mental health symptoms among male and female Canadian student-athletes and a limited number of studies have explored potential protective factors for mental health, such as mental health literacy, a factor known to contribute to reduced stigma and positive attitudes toward help-seeking in the general population. Further, qualitative studies examining the impact of sport culture on student-athletes' understanding of and attempts to manage mental health problems across a range of sports are lacking (Bird et al., 2018; Lebrun

et al., 2018). Using quantitative and qualitative methods, the overarching objective of this doctoral dissertation research was to gain an in-depth and nuanced understanding of student-athletes' experiences with and knowledge of mental health problems. Within this objective, Study 1 aimed to determine estimates of symptoms of common mental health problems (i.e., depression, anxiety, substance and alcohol use, trauma, disordered eating, and general distress) and provide a descriptive assessment of potential protective factors (e.g., mental health literacy and past help-seeking) and the relationship of these variables to symptoms of mental health problems. Study 2 built on the findings from Study 1 and qualitatively explored student-athletes' experiences with and attempts to manage mental health problems and further addressed how the unique sport context impacted their understanding of mental health, the emergence of mental health symptomology, and management of these problems. Finally, this dissertation aimed to explore the impact of the COVID-19 pandemic on student-athletes' mental health using both quantitative and qualitative methods. Findings addressed gaps in the literature and improved the understanding of student-athletes' mental health symptomology, knowledge, and existing management strategies within a competitive sport context and provided insight into future interventions for the prevention, detection, and treatment of mental health problems among student-athletes.

### **Mental Health Problems Among Athletes**

Expectations and ideals about the characteristics of elite athletes may contribute to athletes being considered as a relatively low risk group for mental health problems. For instance, assumptions that involvement in sport and performing well is reflective of optimal mental health and that athletes are mentally tough or that they embrace and persevere in the face of emotional challenges are common (Hughes & Coakley, 1991; Reardon & Factor, 2010). However,

increasing evidence suggests that competitive athletes face unique challenges that may make them vulnerable to developing mental health problems and may prevent them from coping in adaptive ways. Sport, by nature, exposes athletes to factors that increase their vulnerability to developing mental health problems such as injury (experiencing or witnessing), over-training or burnout, high frequency of failed or poor performance, loss of autonomy, body weight requirements/ideals, and ongoing pressures to perform (Lebrun et al., 2018; Reardon & Factor, 2010; Rice et al., 2016). Further, elite athletes may be reinforced for personality characteristics that increase their risk for developing mental health problems such as perfectionism, concern over mistakes, and training through injury (Chang et al., 2020; Henriksen et al., 2020; Reardon et al., 2019). These expectations and ideals may contribute to athletes' tendencies to minimize their symptoms when they are struggling emotionally and mask their struggles by investing further in sport, which is often reinforced (Aron et al., 2019; Doherty et al., 2016). These factors also make mental health problems difficult to detect among athletes, as athletes can often continue to perform at high levels despite struggling with significant emotional distress or mental health problems (Henriksen et al., 2020; Reardon et al., 2019).

Within the last decade, an increasing number of studies have examined the prevalence of mental health problems among competitive athletes and suggest that these concerns are common among this group (Reardon et al., 2019). Existing evidence suggests that athletes experience similar rates of mental health problems compared to the general population (Reardon et al., 2019; Rice et al., 2016). For instance, among a sample of male and female elite soccer players, athletes had similar prevalence rates of moderate (7.6%) and major depression (3%; Junge & Federmann-Demont, 2015) compared to the general population (4.7%; Pearson et al., 2013). However, other studies have reported heightened rates of anxiety and depressive symptoms (24% - 57%;

Gouttebarga & Kerkoffs, 2017; Gouttebarga et al., 2017). Prevalence rates of high-risk alcohol use ranged from 6% - 8% among elite athletes (Gouttebarga et al., 2017; Gouttebarga & Kerkoffs, 2017), which is slightly higher than the prevalence in the general population (4.4%; Pearson et al., 2013). Prevalence rates regarding a broad range of mental health problems (i.e., trauma, and other mood and anxiety disorders, etc.) among athletes are relatively unknown due to the lack of research in this area.

### **Athletes' Experiences of Mental Health Problems in Sport**

Currently, relatively few studies have qualitatively explored mental health experiences of student-athletes and the impact of the sport environment on many aspects of their mental health. Qualitative research studies regarding mental health in sport suggest that athletes face specific barriers to understanding and seeking psychological treatment for mental health problems compared to the general population (Bird et al., 2018; Doherty et al., 2016; Lebrun et al., 2018). For instance, Lebrun and colleagues (2018) explored four elite athletes' experiences of depression using qualitative interviews and found that the way that athletes described their depression was similar to the general population, namely that they endorsed fatigue, feelings of worthlessness, and diminished interest or pleasure in all or almost all activities (American Psychological Association, 2013). Distinct features of athletes' experiences of depression also emerged beyond the Diagnostic and Statistical Manual of Mental Disorder's (DSM-V) criteria, including behavioural (i.e., feeling out of control), performance (i.e., reduced performance, demotivation), and personality (i.e., impulsivity, anxiety, and aggressiveness) changes (Lebrun et al., 2018). Several participants in this study reported changes in their overall character and impulsivity beyond feelings of depressed mood. Namely, they expressed feeling out of control, being compelled by urges to take risks, and sensation-seeking (e.g., doing drugs and abruptly

ending relationships; Lebrun et al., 2018, p. 6). Some participants also experienced performance declines that were associated with their mental health struggles and described their performance as “dropping and dropping” (Lebrun et al., 2018, p. 7) as their mental health problems worsened. Other participants shared this sentiment and although their performance decline was not as dramatic, noted that “I think if I was happier then, I would perform better... it’s hard to get your best performance when you don’t feel happy” (Lebrun et al., 2018, p. 7). These findings suggest that athletes’ experiences of mental health problems overlap with DSM-V diagnostic criteria (e.g., depressed mood, fatigue or loss of energy, decreased ability to think or concentrate, and feelings of worthlessness), but may also be characterized by distinct emotional and behavioral features and include performative elements that impact the onset and course of their mental health problems (e.g., aggressiveness and at-risk behaviour and increased anxiety). In addition to exploring mental health symptoms, other qualitative studies have found that athletes’ understanding of mental health struggles and their attributions to the cause of the problems were impacted by their sporting culture. These studies have found that athletes have shown a tendency to attribute their mental health problems to personal weakness, lack of mental skills, or general life stressors rather than understanding them as mental health problems (Bird et al., 2018; Doherty et al., 2016). These tendencies to attribute the development of mental health problems to personal inadequacy or lack of athletic abilities encourages athletes to cope with their mental health problems in ways that maintain or exacerbate their mental health struggles (e.g., overtraining, training through pain or injury, minimizing their struggles, and believing that they should manage them on their own; Bird et al., 2018; Doherty et al., 2016; Lebrun et al., 2016). However, while some athletes have noted performance declines related to their mental health, qualitative and quantitative studies have found that athletes can continue to function at elite

levels, even when they are struggling emotionally (Doherty et al., 2016; Van Slingerland et al., 2018) These findings highlight that athletes may experience significant mental health problems but they can be difficult to identify, or even masked by sport performance, in this context (Doherty et al., 2016; Lebrun et al., 2018; Reardon et al., 2019). Thus, relying on an assessment of athletes' decline in functioning is not sufficient to identify or understand mental health problems among athletes, and understanding mental health in sport requires a nuanced and multi-faceted approach (Henriksen et al., 2020). Indeed, approaching the understanding of mental health in sport using qualitative approaches is an important gap in the current literature and would provide an individualized, nuanced, and in-depth understanding of athletes' mental health that considers the influence of their sport context on their understanding of and experience of mental health symptoms (Henriksen et al., 2020).

### **Student-Athletes: Increased Risk for Mental Health Problems**

Transition from high school to university, increased academic demands, and isolation from family make university students particularly vulnerable to adverse impacts of emotional distress (Van Slingerland et al., 2018). Young adults (ages 16-34) report the highest rates of mental health problems of any population segment and rates of common mental health problems are increasing among this age category (American College Health Association (ACHA), 2018; Twenge et al., 2010). These heightened rates of mental health problems that have been observed among this population are particularly concerning as university students underutilize professional psychological supports for mental health problems (Eisenberg et al., 2007) and cope with mental health problems in ways that compromise their safety (e.g., hazardous drinking, suicidal ideation and attempts; ACHA, 2013).

As previously mentioned, student-athletes may be particularly at risk for the development of mental health problems given the compounding interaction between their age, student status, and the demands and expectations associated with competitive sport involvement (Rice et al., 2016). Indeed, comparable rates of common mental health problems have been observed among student-athletes compared to their non-athlete peers (Wolanin et al., 2016). However, rates of mental health symptoms and the impact of mental health problems on student-athletes may be underestimated given student-athletes' reluctance to disclose mental health symptoms, negative attitudes towards mental health help-seeking, and low mental health awareness in sport in general (Castaldelli-Maia et al., 2019; Moreland et al., 2018).

### **Student-Athlete Help-Seeking and Stigma**

Some researchers argue that current prevalence estimates of mental health symptomology likely underestimate the extent to which athletes are facing mental health problems (Reardon & Factor, 2010). Athletes themselves echo this concern, asserting that mental health problems in sport are more common than people realize (Lebrun et al., 2018). A possibility for this underestimate may be related to athletes' reluctance to disclose and seek treatment for mental health problems (Eisenberg, 2014; Gulliver et al., 2012) or difficulties recognizing, understanding, and labeling mental health problems (Castaldelli-Maia et al., 2019; Henriksen et al., 2020).

Few studies have examined student-athletes' attitudes toward treatment seeking and treatment seeking behaviour. The limited studies conducted in this area have found that student-athletes have more negative attitudes towards seeking psychological support compared to non-athletes (Watson, 2005). Negative attitudes may account for athletes' low treatment seeking behaviour. In a recent study conducted in Canada with over 1000 current and former elite

athletes, only 35% of current and 33% of former athletes sought help for a mental health problem (Kerr et al., 2019), which is comparable to previous help-seeking estimates observed among college students (e.g., 45% of students diagnosed with depression sought mental health service; Eisenberg et al., 2007). Other studies have reported help-seeking among student-athletes to be lower than the estimates mentioned previously, finding that only 10% of student-athletes impacted by anxiety or depression sought psychological help (as cited in Eisenberg, 2014). This suggests that student-athlete help-seeking may be comparable or possibly lower than the general population and university students, though further research in this area is needed. A limitation to the existing literature surrounding help-seeking behaviour for mental health problems among student-athletes is that mental health services in sport are typically considered to be related to mental performance or sport psychology as opposed to services directed at mental health and psychological treatment (Moreland et al., 2018). This makes mental health service use among student-athletes difficult to assess as it is difficult to discern whether the type of support that they are receiving is related to their mental health, sport performance, or both. Thus, a current understanding of help-seeking attitudes and attempts to manage mental health problems among this group is lacking.

Research efforts have been made towards understanding low treatment seeking among athletes. The most common reason that athletes refrain from disclosing their mental health problem and seeking professional psychological help is fear of stigma (Castaldelli-Maia et al., 2019; Gulliver et al., 2012; Moreland et al., 2018). Qualitatively, athletes have expressed fear that coming forward about their difficulties with mental health would leave them susceptible to embarrassment, isolation, rejection, maltreatment (i.e., reduced playing time), and negative stereotypes (Gulliver et al., 2012; Lebrun et al., 2018). Athletes have reported feeling ashamed of

experiencing mental health problems because "...it was perceived as a weakness at the time" (Lebrun et al., 2018, p. 8). Athletes expressed that experiences of being stigmatized because of a mental health problem have negatively impacted their ability to feel safe interacting with other sport professionals and described feeling "blacklisted in terms of help" (Lebrun et al., 2018, p. 8). This suggests that some athletes have perceived that coaches and support staff treated them differently (e.g., exclusion, discrimination, and stigma) upon being made aware of their mental health struggles. This sense of stigma and discrimination encouraged athletes to keep their struggles with mental health as private as possible.

The prevalence of stigma surrounding mental health has also been observed among student-athletes. Student-athletes have demonstrated higher levels of mental illness stigma compared to non-athlete peers (Kaier et al., 2015) and misconceptions/fears about seeking psychological treatment (e.g., being judged by the professional; Bird et al., 2018, p. 12). For instance, one study found that student-athletes had significantly higher levels of personal ( $M$  athletes = 2.18) and perceived public ( $M$  athletes = 2.38) mental illness stigma compared to non-athletes ( $M$  non-athletes personal = .65;  $M$  non-athletes perceived public = 2.05 out of six; Kaier et al., 2015). This (fear of) stigma and negative treatment attitudes have been identified as barriers to seeking help and receiving appropriate psychological treatment among elite athletes (Doherty et al., 2016; Gulliver et al., 2012; Lebrun et al., 2018; Watson, 2005). Student-athletes have endorsed similar reluctance to seeking psychological help and attributed this resistance to stigma (Beauchemin, 2014). As one athlete reported, "I think that's people's first thought is that something is wrong if you go to counselling" (Beauchemin, 2014, p. 275). Instead, many athletes minimized their problems, and tried to manage mental health issues on their own (Bird et al., 2018), often by overly investing in their sport training (Doherty et al., 2016). Of great concern is

that many athletes may cope with mental distress by engaging in harmful behaviours such as self-harm (6.0% of current athletes), have thoughts of suicide (13% of current athletes; Kerr et al., 2019), or abuse substances (Miller et al., 2002).

Enduring stigma surrounding mental health in sport can discourage athletes from disclosing and seeking help for their mental health problems and may both contribute to and maintain the general lack of knowledge, transparency, and screening for mental health problems in sport (Coyle et al., 2017; Gulliver et al., 2012; Goutteborge & Sluiter, 2014; Lebrun et al., 2018). Even at an elite level, sport organizations do not screen for mental health problems, but thoroughly assess the presence and potential for physical health problems (Goutteborge & Sluiter, 2014). Further, many mental health issues may be silenced or avoided within a sport context. For example, in one study, an elite athlete reported that following the termination of a teammate's sport involvement due to mental health issues, "no one really says anything; nobody still knows what actually happened" (Coyle et al., 2017, p. 13). An additional barrier is that mental health resources that athletes have within a sport organization may be limited (Doherty et al., 2016), especially in comparison to resources that support athletes' physical health (Henriksen et al., 2020). For instance, few sport organizations are willing to invest in a full-time mental health practitioner and feel hesitant about this professional addressing issues beyond performance (Wrisberg et al., 2012). High profile elite athletes have begun to open up about the difficulties that elite sport involvement can pose to their mental health and assert that their mental health should receive the same attention and resources that are devoted to their physical well-being (Ford, 2016; Henriksen et al., 2020). Considering the prevalence of mental health problems in sport and the influence of stigma on athletes' willingness to disclose and seek treatment for said problems, it is important to gain a deeper understanding of the stigma

surrounding mental health in sport and in the impact of the sporting culture on athletes' mental health in order to create a safe environment for athletes to receive appropriate support for mental health problems.

### **Origins of Mental Health Stigma in High-Performance Sport: The Sport Ethic**

Despite increased awareness of mental health problems in sport (Rice et al., 2016), stigma related to mental health in sport has persisted (Gulliver et al., 2012; Moreland et al., 2018). A theoretical framework proposed by Hughes & Coakley (1991), the Sport Ethic, may account for athletes' (and generally, sport cultures') enduring negative attitudes to towards mental health problems. The perceptions of athletes being strong, dedicated, and willing and able to play through pain are deeply rooted in sporting culture ideals that athletes themselves internalize from a young age and work hard to ascribe to. Hughes and Coakley (1991) refer to these expectations as the Sport Ethic: a set of unwritten rules that govern athletes' identities and behaviors. According to the Sport Ethic, athletes learn early on in their endeavors that success in sport requires unrelenting dedication to one's sport, playing through pain, sacrifice, and being strong in the face of adversity. Specifically, Hughes and Coakley (1991) suggest that in order to identify oneself as an athlete one must i) make sacrifices in order to play and love the game at all costs, ii) strive to distinguish oneself, typically through winning and constantly pursuing improvement and perfection, iii) be courageous and composed in the face of challenges and never succumb to fear, pressure, and pain, and iv) accept no limits in one's potential. These ideals are reinforced and communicated through all aspects of an athlete's world, such that athletes deeply internalize these standards and learn from a young age that adhering to them distinguishes oneself as a *real* athlete (Hughes & Coakley, 1991).

Most people, including athletes, accept and encourage the characteristics of the Sport Ethic, without criticism, and strongly reinforce athletes who exemplify them. Athletes who behave consistently with the Sport Ethic are often reinforced with praise from coaches, teammates, and fans and awarded with playing time and future opportunities. This creates a feedback loop wherein athletes are compelled by this success and recognition to continue such adherence (Hughes & Coakley, 1991). For instance, the athlete who plays through injury and pain or shows unrelenting dedication to their training is often glorified by coaches and in the media. This ongoing praise and reinforcement for adhering to the Sport Ethic affirms and reaffirms athletes' identities and sense of belonging to this elite group, which is of utmost importance to the athlete. However, this consistent reinforcement that athletes receive for upholding these ideals can be problematic as their sense of identity and self-worth can become dependent on their abilities to act in accordance with the Sport Ethic (Doherty et al., 2016; Hughes & Coakley, 1991).

### **Mental Health Literacy**

An important impact of the Sport Ethic is that it may minimize the likelihood that athletes seek out information about mental health, including the key symptoms, causes, prevention strategies, and treatments. Existing research suggests that athletes have limited awareness about mental health problems (i.e., recognition of the signs and symptoms, ability to accurately attribute the cause of mental health problems, and knowledge of how to prevent and address mental health problems (Doherty et al., 2016; Gulliver et al., 2012). This lack of awareness may contribute to the relatively negative attitudes towards seeking psychological treatment and low help-seeking behaviour that has been observed among athletes (Kaier et al., 2015; Watson, 2005). As described earlier, stigma regarding mental health is prominent for athletes which

prevents them from seeking help (Gulliver et al., 2012; Kaier et al., 2015, Moreland et al., 2018). Mental health literacy, a concept that encapsulates a) knowledge of how to prevent the development of mental health problems, b) recognition of mental health problems, c) knowledge of available treatment and help-seeking options, d) knowledge of effective self-help strategies for relatively mild problems, and e) first aid skills to assist others who are developing mental health problems or are in a mental health crisis (Jorm, 2012, p. 231), represents one factor that may account for negative attitudes toward seeking psychological treatment for mental health problems and stigma among athletes. Recent estimates suggest that the general population in Canada and globally have low to moderate mental health literacy regarding a range of mental health problems, though adults tend to show higher levels of mental health literacy for depression compared to other common mental health problems (i.e., anxiety or schizophrenia; Furnham & Swami, 2018; Jorm et al., 2006; Marcus et al., 2012).

Emerging research has found there may be gaps in knowledge about the signs and symptoms and ways to address mental health problems among young adults (aged 18-24) and specifically university students (Cheng et al., 2018; Coles & Coleman, 2010; Marcus et al., 2012; Stansbury et al., 2011) In one study, over 50% of college students incorrectly labeled generalized anxiety disorder (Coles & Coleman, 2010). In another study with university students, 37% of university students attributed depressive symptoms to stress or personal reasons (e.g., family conflict) and failed to correctly identify depression in a case vignette (Stansbury et al., 2011). Other research has yielded similar findings regarding university students' difficulties identifying and correctly attributing the causes of mental health problems and found that only 61.8% of college students correctly identified generalized anxiety disorder in a case vignette and 47.2% and 26.2% inaccurately attributed depression and anxiety symptoms to stress (Cheng et al.,

2018). These findings suggest that university students may struggle to recognize the signs, symptoms, and causes of common mental health problems.

The relatively low levels of mental health literacy that have been observed among young adults and university students is concerning as it may undermine help-seeking (Jorm, 2012). In Canada, a recent study found that the most common reason that adults reported for failing to seek help was due to lack of recognition of a mental health problem (Marcus et al., 2012). In contrast, mental health literacy positively related to attitudes towards seeking professional psychological treatment and past-year mental health service use (Reynolds et al., in preparation). Among university students, mental health literacy was associated with positive attitudes towards seeking professional psychological help and intentions to seek help compared to those who inaccurately attributed depression and anxiety symptoms to stress (Cheng et al., 2018; Coles & Coleman, 2010). In addition to positively relating to help-seeking attitudes, university students' mental health literacy was also related to actual help-seeking behaviours for mental health problems (Beatie et al., 2016). On the other hand, attributing mental health problems to environmental factors or life stressors was positively related to favouring non-evidence-based treatment strategies over seeking professional help among university students (Coles & Coleman, 2010).

A possible explanation for the relationship between mental health literacy and favourable help-seeking attitudes and behaviours may be the negative association between mental health literacy and stigma. High levels of mental health literacy are associated with low levels of stigma about mental health problems in the general population (Reynolds et al., in preparation). The negative relationship between mental health literacy and stigma has also been observed among university students (Beatie et al., 2016; Cheng et al., 2018). In contrast, self-stigma related to mental health problems was found to predict negative attitudes towards seeking professional

psychological help among university students (Cheng et al., 2018). This is significant, as negative attitudes may be associated with low help-seeking behaviour. This relationship has been observed among Canadian university students, where individuals with positive help-seeking attitudes and low self-stigma were the most likely to engage in actual help-seeking behaviour (Beatie et al., 2016). The impact of stigma on help-seeking attitudes and behaviours has been observed in studies with athletes, as previously mentioned, as stigma is the most commonly reported barrier to seeking help for mental health problems among athletes (Castaldelli-Maia et al., 2019; Moreland et al., 2018).

The fact that mental health literacy is associated with positive attitudes and behaviours related to seeking psychological help and low stigma is important since seeking psychological treatment for mental health problems is positively related to short and long-term benefits (i.e., psychological, physical, interpersonal, and financial; Eisenberg et al., 2009). Further, understanding mental health literacy among young adults is especially relevant given that attitudes toward mental health help-seeking are declining among university students (Mackenzie et al., 2014). The current literature suggests that all aspects of mental health literacy may be limited among athletes and this relationship may be impacted by the influence of mental health stigma that is prevalent in sport (Castaldelli-Maia et al., 2019). For instance, elite athletes report problems with recognition, accurate attribution, and help-seeking related to mental health problems (Doherty et al., 2016; Gulliver et al., 2012; Lebrun et al., 2018) and athletes have cited stigma as a barrier to help-seeking (Bird et al., 2018). However, a limited number of studies to my knowledge have examined mental health literacy among an athletic sample, and specifically among student-athletes. This is an important gap in the current literature, as understanding the scope of mental health literacy and its relationship to mental health symptoms and help-seeking

behaviour among student-athletes may provide a useful target for intervention for the prevention of mental health problems in sport.

### **Summary of Main Findings and Gaps in the Literature**

The impact of mental health challenges that has been observed among student-athletes, low help-seeking, and tendency to have negative attitudes towards psychological help-seeking is significant, as failure to recognize and receive support for mental health problems can impair academic performance, personal functioning, relationships, and physical health (ACHA, 2013). Student-athletes represent a group who may be especially at risk for problems with their mental health, given the compounding risk that their academic and athletic demands pose for their mental health. Consideration of the unique context of competitive sport and the tendency for athletes and sport culture at large to internalize ideals associated with strength, emotional fortitude, and mental toughness (The Sport Ethic), dealing with mental problems in sport can pose many challenges for athletes. Indeed, it is possible that these internalized expectations about what it means to be a real athlete (The Sport Ethic) may contribute to negative attitudes towards mental health support and low treatment seeking observed among athletes. The impact of untreated mental health problems among this at-risk group can extend beyond an athlete's sport involvement and may contribute to reduced academic performance and overall well-being (Wolanin et al., 2016). However, few empirical studies have qualitatively examined the mental experiences of this group (experiences, symptoms, resources, supports, attempts to manage, and impact on sport and other facets of life). Additionally, there are a limited number of studies that have quantitatively examined estimates of a range of mental health symptoms and factors that impact mental health symptoms (e.g., mental health literacy, past help-seeking) among student-athletes, with most studies focusing on general distress, depression, and anxiety.

Limited qualitative research among competitive athletes suggests that athletes may understand, express, and cope with mental health problems in distinct ways compared to the general population and that their sporting culture influences these factors. However, a limited number of qualitative studies have explored student-athletes' mental health experiences among athletes with a range of mental health symptoms, beyond depression. Using a qualitative approach to understanding student-athletes' mental health is important as the detection of mental health symptoms among athletes is challenging. For instance, previous research has demonstrated that while athletes are impacted by mental health symptoms, they can be difficult to detect and athletes may continue to function at a high level, despite experiencing heightened mental health symptoms (Reardon et al., 2019; Van Slingerland et al., 2018). Further, athletes may refrain from seeking professional psychological support for mental health problems, due to stigma and general lack of awareness about mental health problems in sport (Castaldelli-Maia et al., 2019). Considering the gaps in the current literature, it is important to understand student-athletes' mental health using diverse research methods (Henriksen et al., 2020).

In addition to the previously mentioned challenges faced by student-athletes, current circumstances related to the COVID-19 pandemic have posed further difficulties for this population. Student-athletes face similar challenges as other university students during the pandemic, including coursework and examinations being moved to online platforms, employment and financial stress, and uncertainty surrounding their return to classes. Additionally, student-athletes' training and competitive schedules have been suspended prematurely, with many major competitions being suddenly cancelled. For many senior or graduating athletes, their final competitive experiences may have been lost. Given public health restrictions concerning physical distancing, student-athletes have had to try to train

independently and may have limited contact with their teammates, coaches, and health professionals (e.g., athletic and massage therapy). This may result in increased isolation and negatively impact their ability to engage in healthy behaviours (e.g., exercising, eating healthy, and practicing good sleep hygiene), and may increase their risk for developing or exacerbating problems with their mental health (e.g., substance use, anxiety, low mood). Considering the rise of these unique circumstances, it is important to gain a sense of the impact of COVID-19 on student-athletes' mental health symptoms and their ability to access and utilize supports during this time.

### **Research Objectives**

The overall objective of this doctoral dissertation research was to gain an in-depth, complex understanding of student-athletes' experiences, knowledge, and management strategies related to mental health problems. These objectives were achieved by conducting two interconnected, yet distinct studies. In Study 1, I used quantitative methods to: 1) provide an assessment of the scope and severity of symptoms of mental health problems that Canadian student-athletes experience, 2) examine factors related to student-athletes' mental health problems (e.g., mental health literacy, past help-seeking), and 3) explore the impact of COVID-19 on student-athletes' mental health using quantitative and qualitative methods. Data was obtained by administering a survey at two timepoints (September 2019 and May 2020) that included questions regarding student-athletes' demographic, sport, and mental health history information, in addition to various measures to assess a range of common mental health problems and mental health literacy. The survey administered in May 2020 also included closed and open-ended questions regarding the impact of the COVID-19 pandemic on student-athletes' mental health. Quantitative data was analyzed using descriptive statistics, single sample t-tests,

and Kruskal Wallance tests. Open-ended questions were analyzed using reflexive thematic analysis. Study 2 built on the findings from Study 1 by providing a more in-depth understanding of student-athletes' mental health problems and experiences. In Study 2, I used qualitative methods to further examine student-athletes' experiences of mental health problems and how the sport context impacts their understanding of and attempts to manage these problems. Study 2 also qualitatively explored the impact of COVID-19 on student-athletes' mental health and attempts to manage their mental health amidst public health restrictions. This approach provided an experiential and nuanced understanding of student-athletes' mental health and help-seeking during the COVID-19 pandemic, to further contextualize findings from Study 1. This study was approached and analyzed using an Interpretive Description framework. Results from each study were analyzed separately and then integrated into a final discussion of points of convergence and divergence between the data.

Overall, this research is novel and informative given the examination of a range of common mental health problems among a sample of Canadian student-athletes, for which information regarding their mental health problems is limited. Qualitative studies that have aimed to understand student-athletes' mental health are generally lacking (Bird et al., 2018; Pankow et al., 2021). Thus, the proposed study will help to address these gaps in the literature and will provide a more in-depth and nuanced understanding of student-athletes' understanding of mental health symptoms and barriers to seeking psychological help using diverse research methods. Findings from this dissertation will provide diverse information regarding the mental health experiences among student-athletes'. In terms of implications, the findings from this dissertation will help to inform the development of future strategies and psychological

interventions that may be most relevant and useful for this unique population to address and prevent further decompensation in student-athletes' mental health.

The following dissertation first examines the scope and severity of student-athletes' mental health problems, the relationship of mental health symptoms to factors known to buffer against mental health problems, and the impact of the COVID-19 pandemic on student-athletes' mental health (Study 1). Chapter 3 expands on the results from Study 1 and describes an in-depth exploration of student-athletes' mental health experiences and their attempts to manage their mental health in a competitive sport context. Finally, in Chapter 4, I discuss the converging and diverging themes across my data from studies 1 and 2 and discuss clinical and research implications.

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## Mental Health Problems and the Impact of COVID-19 on Student-Athletes' Mental Health

### **Chapter 2: Study 1**

Attending university has been identified as a high-risk period for the development of mental health problems (Frenette & Zeman, 2021). Student-athletes represent a subset of university students who may be at increased risk for heightened mental health symptoms, given their compounding academic and sport-specific stressors (Kuettel & Larsen, 2020; Moreland et al., 2018; Mountjoy et al., 2023). However, few studies to my knowledge have examined the scope of common mental health problems among Canadian student-athletes and factors that may buffer against the development of mental health problems among this population. The objectives of this study were to provide a quantitative assessment of the scope and severity of a range of mental health problems among a sample of student-athletes from a central Canadian university and examine the relationship between mental health problems and factors known to be associated with positive mental health and psychological help-seeking (e.g., mental health literacy). An additional objective was to examine student-athletes' mental health during the onset of the COVID-19 pandemic and qualitatively explore the impact of the pandemic on the mental health of this population.

#### **University Students' Mental Health**

Recent data conducted among university students in Canada found that nearly 40% of students reported severe psychological distress indicative of a probable mental health problem (Canadian Campus Well-Being Survey, 2023). A recent survey conducted among university students across North America found that 26% and 33% of respondents reported having received a previous diagnosis of depression and anxiety, respectively by a health professional (ACHA, 2022), which is significantly higher than the prevalence observed in the general population

(4.4% with depression and 3.6% with anxiety; WHO, 2017). Moreover, in Canada, young adults report the highest percentage of heavy alcohol use ( $\geq$  five (male)/four (female) drinks per week once per month) compared to other age categories (Statistics Canada, 2019). Findings regarding other mental health problems suggest that university students experience other common mental health problems at high rates. For instance, the 12-month prevalence of eating disorders is 6.3% (ACHA, 2022) and ranges from 6% to 17% for post-traumatic stress disorder (PTSD; Read et al., 2011) compared to 8.7% in the general population (Aron et al., 2019). University students are also among the least likely group to utilize professional forms of psychological treatment for mental health problems (e.g., psychologist, counsellor, or psychiatrist; Eisenberg et al., 2007), and instead may engage in hazardous substance use behaviour and have higher rates of suicidal ideation and attempts (ACHA, 2018).

### **Student-Athletes' Mental Health**

While the benefits of physical exercise, including strength and cardiovascular training, and involvement in organized sport for mental health are well-documented (Eather et al., 2023; Smith & Merwin, 2021), increasing evidence suggests that mental health problems are common among competitive athletes. Given their age and unique factors associated with competitive sport participation (e.g., injury and failed or poor performance (Kuettel & Larsen, 2020; Reardon et al., 2019)) combined with academic, financial, and relational stressors, student-athletes may have an increased vulnerability to developing mental health problems (Kuettel & Larsen, 2020; Moreland et al., 2018; Van Slingerland et al., 2018). In line with research conducted among elite athletes, existing evidence suggests that mental health problems among student-athletes are common. In the United States, one study examined depressive symptoms over the course of three athletic seasons and found that the prevalence rate of clinically relevant depression symptoms

among student-athletes was 23.7%, (Wolanin et al., 2016). These results are comparable to the prevalence estimates observed among university students in general (e.g., 17.3% and 22% of university students reported receiving a diagnosis of depression or anxiety, respectively, in the last 12 months; ACHA, 2018).

A limited number of studies have examined symptoms of mental health problems among Canadian student-athletes. One study found that student-athletes in their sample exceeded the clinical cut-off scores for distress (24% - 40%), depression (19% - 26%), anxiety (15% - 30%), alcohol misuse (49% - 55%), substance use (5% - 10%), and disordered eating (72% - 83%) at three time points across the athletic season (Mountjoy et al., 2023). Notably, mental health symptoms did not significantly differ across the athletic season and academic year (Mountjoy et al., 2023). Another study of Canadian student-athletes found that approximately 20% reported severe levels of distress indicative of probable mental health problems (Sullivan et al., 2019). Females, nonstarters, and athletes without scholarships were at increased risk for experiencing heightened psychological distress (Sullivan et al., 2019).

Existing findings suggest that student-athletes are an at-risk group for developing mental health problems, despite their elite athlete status. Although this recognition is increasing, it is possible that prevalence estimates of mental health problems may be underestimated among this group. Factors associated with the competitive sport environment -- such as lack of mental health awareness, stigma, negative help-seeking attitudes, and behaviours that reflect mental health symptoms that may be misunderstood as “common” or even desirable elite athlete behaviours (e.g., diligent eating and overtraining; Reardon & Factor, 2010) -- may contribute to mental health problems being difficult to detect and under-reported among athletes (Castaldelli-Maia et al., 2019). However, few empirical studies have examined the extent of a range of common

mental health problems among male and female Canadian student-athletes and the relationship of student-athletes' mental health symptoms and factors associated with mental health symptoms.

### **Mental Health Literacy Among Athletes**

Athletes report that they have low awareness about mental health problems, negative attitudes towards help-seeking, and refrain from utilizing mental health supports (Gulliver et al., 2012; Kaier et al., 2015). Stigma regarding mental health is the most commonly cited reason that prevents them from seeking help for their mental health (Castaldelli-Maia et al., 2019; Gulliver et al., 2012; Moreland et al., 2018). Mental health literacy, a term defined by Jorm and his colleagues as “knowledge and beliefs about mental disorders which aid their recognition, management or prevention” (1997, p. 182), represents one factor that may account for negative attitudes toward seeking psychological treatment for mental health problems among athletes. In addition to being able to recognize mental health problems, mental health literacy encompasses knowledge about how to: prevent mental health problems from developing, access appropriate treatment options, and offer support when others are in a mental health crisis (Jorm, 2012). Recent estimates suggest that the general population has low to moderate mental health literacy regarding a range of mental health problems (Furnham & Swami, 2018; Jorm et al., 2006). One Canadian study found that while young (aged 18-24) and older (25-64) adult cohorts did not differ in their abilities to recognize and accurately label mental health problems, young adults showed a propensity to attribute mental health problems to biological causes and felt that psychotherapy would not be helpful for mental health problems compared to the older cohort (Marcus et al., 2012). Further research conducted among university students reflects findings in the general population that university students who fall in the young adult age category have

difficulty recognizing common mental health problems and their causes (e.g., attribute their symptoms to personal reasons or stress; Cheng et al., 2018).

University students' failure to accurately recognize and label mental health problems is concerning as it may undermine help-seeking (Cheng et al., 2018; Jorm, 2012). Indeed, mental health literacy has been associated with positive psychological help-seeking attitudes, intentions, and behaviour among university students (Beatie et al., 2016; Cheng et al., 2018, Cole & Coleman, 2010). A possible explanation for the relationship between mental health literacy and favourable help-seeking attitudes and behaviours may be the negative association between mental health literacy and stigma. High levels of mental health literacy are associated with low levels of stigma about mental health problems in the general population (Reynolds et al., in preparation) and among university students (Beatie et al., 2016; Cheng et al., 2018). This is significant, as negative attitudes are associated with low help-seeking behaviour (Mackenzie et al., 2022). The relationship between negative attitudes and low help-seeking bears out in studies with athletes, as previously mentioned, as stigma is the most commonly reported barrier to seeking help for mental health problems among athletes (Castaldelli-Maia et al., 2019; Moreland et al., 2018). The fact that greater mental health literacy is associated with positive attitudes and behaviours related to seeking psychological help and low stigma is important since seeking psychological treatment for mental health problems is associated with improved psychological, physical, interpersonal, and financial outcomes (Eisenberg et al., 2009). Additionally, understanding mental health literacy among university students, including student-athletes, may be especially important as psychological help-seeking attitudes are becoming more negative over time among this population (Mackenzie et al., 2014).

The current literature suggests that there are gaps in knowledge about the signs and symptoms of mental health problems, possible causes, and available treatment options among athletes (Castaldelli-Maia et al., 2019). For instance, elite athletes report failing to recognize when they were experiencing problems with their mental health (Gulliver et al., 2012), attributed their challenges to a mental weakness (e.g., Doherty et al., 2016), worked hard to conceal or minimized their struggles, and refrained from seeking professional help (Gulliver et al., 2012; Lebrun et al., 2018). Even among student athletes who received mental health treatment, many reported that they found it difficult to recognize the severity of their symptoms and accept that they needed help due to mental illness stigma. As one athlete reported “It was hard for me to think of myself as someone who needed help” (Bird et al., 2018, p. 12), which was a barrier to help-seeking. Considering the lack of awareness and prevalence of stigma surrounding mental health problems in sport, specifically among student-athletes (Kaier et al., 2015), understanding mental health literacy among student-athletes may provide a useful target for intervention.

### **COVID-19 and Student-Athlete Mental Health**

The COVID-19 pandemic has posed additional challenges for university students’ mental health, who reported heightened levels of distress compared to the general population prior to the pandemic (ACHA, 2018; Cao et al., 2020; Giuntella et al., 2021). The NCHA found that reported mental health concerns were 150 -200% higher after the onset of the pandemic (2020) than during previous reporting periods (NCHA, 2020). Increased psychological distress (i.e., depression and anxiety) among university students during the pandemic was positively related to concerns about academic delays, financial implications of the pandemic, disruptions to daily routine, and reductions in exercise engagement (Cao et al., 2020; Zhang et al., 2020). The pattern of increased psychological distress related to the pandemic has extended to student-athletes. In

addition to the challenges experienced by university students in general, student-athletes have faced unique challenges associated with the pandemic including closures of training facilities, limited access to coaches, teammates, and support staff, and uncertainty surrounding their athletic and academic futures which can contribute to or exacerbate mental health problems due to increased anxiety, isolation, sadness, and sedentary behaviour (Grubic et al., 2021). Thus, continuing to understand the scope of mental health problems among Canadian student-athletes in the context of the COVID-19 pandemic and potential protective factors is important in supporting the mental health of this high-risk group.

### **Gaps in the Literature**

The impact of emotional challenges experienced by university students, including student athletes whose tendency is to underutilize available supports, can be severe and far-reaching, having the potential to lead to impairment in academic performance, personal functioning, relationships, and physical health (ACHA, 2018, Frenette & Zeman, 2021). Student-athletes show relatively lower help-seeking behaviours compared to their non-athlete peers (Donohue et al., 2018), likely due to previously mentioned factors (e.g., stigma, lack of mental health information and awareness), which emphasizes the importance of further understanding symptoms of mental health problems and facilitators to help-seeking among this population. Considering these risks, in addition to sport-specific and academic demands, student-athletes represent a group who may be especially at risk for problems with their mental health (Kuettel & Larsen, 2020). However, few empirical studies have quantitatively examined estimates of a broad range of mental health problems among Canadian student-athletes in range of sports across an athletic season (e.g., Mountjoy et al., 2023; Van Slingerland et al., 2018). Further, few studies to my knowledge have examined mental health literacy, a modifiable factor (Liao et al., 2023)

that has been found to relate to positive mental health help-seeking attitudes and behaviours, among student-athletes. Finally, the impact of the COVID-19 pandemic has been significant for student-athletes, whose sporting and academic pursuits were significantly disrupted. However, limited studies to my knowledge have quantitatively examined the impact of the COVID-19 pandemic on Canadian student-athletes' mental health (Mountjoy et al., 2023), particularly, using pre-COVID mental health estimates, and very few studies have examined the impact of the pandemic on student-athletes' mental health using qualitative approaches.

### **Objectives**

The overarching objective of this study was to further understand student-athlete mental health. The primary objective of this study was to provide an assessment of the scope and severity of symptoms of mental health problems that Canadian student-athletes experience. A secondary objective was to examine factors related to student-athletes' mental health problems (i.e., mental health literacy, past help-seeking). A final objective of this study was to explore the impact of COVID-19 on student-athletes' mental health using quantitative and qualitative methods. I utilized quantitative data to provide an estimate of student-athletes' mental health problems during the pandemic and compared these results to their reported mental health symptoms prior to the pandemic. I utilized qualitative data to contextualize the impact of the COVID-19 pandemic on athletes' mental health and provided an opportunity for athletes to clarify and share their direct experience regarding their mental health amidst the pandemic. Hearing the lived experiences of participants provides more participant-driven and therefore relevant information regarding implications of the study findings and potential intervention.

## **Methods**

### **Design and Participants**

This study employed a cross-sectional design that involved administering a brief, online survey of mental health symptomology and mental health literacy at three time-points throughout an athletic season and academic year (September 2019 (T1) and February (T2) and May 2020 (T3)). Eligibility criteria included being a university-level athlete from a central Canadian university who was selected for the 2019-2020 athletic season. This athletic program included approximately 375 student-athletes during the 2019-2020 competitive season. There were no additional exclusion criteria.

### **Context**

Screening and travel restrictions related to COVID-19 were announced in Canada in January 2020 and the World Health Declared COVID-19 as a pandemic on March 11, 2020. Following this declaration, the provincial government implemented public health restrictions to prevent the spread of COVID-19 that rapidly progressed in March of 2020 including closure of non-essential business, limitations of large social gatherings to 10 people or less, and the suspension of in-person education (March 13, 2020). During this time, all classes at the university this study sampled from were moved to online learning (March 13, 2020). University sports were also suspended promptly following the onset of the COVID-19 pandemic, in order to comply with the public health restrictions (March 2020), and all university sporting events set for the end of the season were cancelled. The restrictions and cancellations related to the COVID-19 pandemic continued to escalate in the following months and in June 2020, USPORTS, the

Canadian university sporting body, announced the cancellation of Fall 2020 sporting competitions.

Initially, the aim of this research was to examine a range of mental health symptoms among Canadian student-athletes across the athletic season and academic year. However, given the onset of the COVID-19 pandemic and the significant impact of the pandemic on student-athletes, the aims of this research evolved to address this emergent and relevant research question. Thus, the initial study aims were adapted (i.e., assessing mental health symptoms across the athletic season) to instead address an aim of understanding the impact of the COVID-19 pandemic on student-athletes' mental health, given the novelty and timeliness of the pandemic related to the timing of the data collection.

### **Recruitment and Response Rates**

*T1.* During T1, A total of 142 individuals accessed the initial online survey and an additional 12 participants completed the survey in paper form. Of this original 154 participants who accessed the survey, 14 were removed from the final analysis due to incomplete survey responses (i.e., failure to complete the survey after providing informed consent). Thus, a total of 140 participants were included in the final analysis for T1. This rate of responding based on the total number of student-athletes is slightly lower than a previous study conducted among Canadian student-athletes (Response rate at T1 was 98%; Mountjoy et al., 2023). Possible reasons for this response rate may be due to some sporting teams being unable to attend the initial orientation, where the majority of the study recruitment occurred. Though the survey remained on the student-athlete website for 30 days after the initial recruitment, in-person recruitment was significantly more effective.

**T2.** Of the original 140 participants who completed the T1 survey, 111 participants consented to be contacted for the follow-up time points. Eighteen participants from the original T1 sample who were sent the follow-up survey completed the questionnaire (12% of original sample completed). Considering the low response rate of participants and the relevance of the emergence of the COVID-19 pandemic (described above), I decided to only utilize the data from T1 and T3 in order to maximize participant responding and prioritize data that would provide a novel contribution to the literature.

**T3.** Of the 111 participants who were sent the T3 survey, a total of 28 participants completed the T3 survey (25% response rate), and all of their data was included in the final analysis. The slightly higher response rate observed at T3 than T2 may be related to athletes having more time, due to COVID-19 restrictions and possibly having fewer academic demands than at T2 (e.g., winter term was completed, survey administration did not coincide with potential exams). This rate of responding for a third timepoint is comparable to another longitudinal study that was conducted among Canadian student-athletes (24% respond rate at time 3; Mountjoy et al., 2023). Though I was not able to ascertain reasons for participant dropout, possible reasons may include athletes graduating, being finished academic classes and no longer monitoring their emails closely, or consequences of the COVID-19 pandemic. No new recruitment occurred during this timepoint.

## **Procedure**

Prior to recruitment commencing, ethical approval was obtained from the applicable institutional Research Ethics Board (REB). Upon receiving institutional ethical approval, participants were recruited from a central Canadian university. The lead researcher attended in-person athlete orientation sessions and disseminated the survey link. Recruitment information

also remained on the university athletes' webpage for potential participants to access for one month. Participants completed informed consent and study measures online, including measures related to demographics, mental health, and mental health literacy using a secure online survey platform (Qualtrics, see Appendix A). Participants were also provided with information for mental health resources that they could access if they required additional mental health support. Upon completion of the survey at T1, participations were thanked for their time and entered to win a gift card for their participation. Participants who indicated their consent to be contacted for future iterations of the survey were emailed the link to the survey for the subsequent timepoints by the lead researcher (January 2020 and May 2020). Participants who completed T3 (May 2020), which included additional questions related to COVID-19, and was therefore more time consuming, were provided with a \$10 online gift card upon completion of the survey.

## **Measures**

A series of measures assessed a range of mental health symptoms, mental health literacy, and the impact of the COVID-19 pandemic on student-athletes' mental health. Consideration was given to selecting measures that maximized both sensitivities to detecting clinically meaningful levels of mental health symptoms and time to complete the survey to reduce participant burden.

### ***Demographic and Sport Measures (T1)***

Participants reported their age, gender, ethnicity, marital status, living situation, their academic program of study and year in university, the sport they played at the university level, how long they have played that sport and how long they have played at a university level. They

also reported the phase of the competitive season that they were currently playing in, and their weekly training hours.

### ***Mental Health History (T1)***

Regarding their mental health history, athletes reported if they had ever received a mental health diagnosis and if they sought help for that problem. If they endorsed past mental health help-seeking, they were given the option to specify the type of support that they sought.

### ***Symptoms of Mental Health Problems (T1& T3)***

A series of self-report measures were used to assess a broad range of common mental health problems. Measures were selected based on their psychometric properties, clinical utility (e.g., established clinical cut-off scores and norms), and number of items. The latter point was particularly important as it was integral to ensure that the measures could provide useful clinical information about the scope of mental health problems among student-athletes and require minimal amount of time required to complete the survey. I chose to examine the following disorders based on previous studies that have suggested that athletes and student-athletes are impacted by common mental health problems (e.g., distress, anxiety, depression, disordered eating, substance and alcohol use; Reardon et al., 2019; Rice et al., 2016). Further, I chose to add a measure to assess PTSD as this is a relatively understudied mental health problem among student-athletes. Clinical cut-off values were based on previous recommendations ( $\geq 55$  for depression and anxiety,  $\geq 15$  for the EDE-QS,  $\geq 60$  for alcohol and substance use,  $> 5$  for K6, and  $\geq 31$  on the PCL-5 for PTSD; Blevins et al., 2015; Cella et al., 2010; Pilkonis et al., 2016; Prnjak et al., 2020; Prochaska et al., 2012).

**Depression.** The Patient-Reported Outcomes Measurement Information System (PROMIS)-Depression-6 scale measured participants' depression symptoms. This 6-item measure requires that individuals respond to the items relative to a 7-day time frame (i.e., "In the past 7 days...") about items related to depressive symptoms (e.g., "I felt helpless") on a 5-point scale 1 (*never*) to 5 (*always*). Scores from the 6-items are summed to obtain a total raw score. Raw scores are converted to scaled *T* scores, with a mean of 50 and standard deviation of 10, based on a standardized sample in the United States. This measure demonstrated strong reliability in this study ( $\alpha = .90$ ) and good construct validity ( $r = .41$ ; Quach et al., 2016).

**Anxiety.** The PROMIS-Anxiety-6 scale measured participants' anxiety symptoms. Participants rated their symptoms of anxiety on six items (e.g., "I felt nervous") on a 5-point scale 1 (*never*) to 5 (*always*) across a 7-day frame (i.e., "In the past 7 days..."). Scores from the six -items are summed to obtain a total raw score. Scores range from six to thirty, with higher scores indicating higher anxiety symptomology. Raw scores are converted to scaled *T* scores, with a mean of 50 and standard deviation of 10, based on a standardized sample in the United States. This measure has demonstrated strong reliability ( $\alpha = .90$ ) and convergent validity ( $r = .44$ ; Quach et al., 2016), and demonstrated strong reliability ( $\alpha = .90$ ) in this study.

**Substance Use.** The PROMIS Severity of Substance Use-7a scale assessed symptoms of substance use. Participants responded to seven items regarding their substance use (e.g., "My desire to use drugs seemed overpowering") in the past 30 days on a five-point scale ranging from 1 (*not at all*) to 5 (*very much*). Responses from seven items are summed to create a total raw score. Raw scores range from 7-35, with high scores indicating high severity of substance use. Raw scores are converted to scaled *T* scores, with a mean of 50 and standard deviation of 10,

based on a standardized sample in the United States. This scale has demonstrated strong reliability in previous studies ( $\alpha = .94$ ; Pilkonis et al., 2015) and in this sample ( $\alpha = .97$ ).

**Alcohol Use.** The PROMIS Alcohol Use Short Form-7a assessed severity of alcohol use. Participants responded to seven items regarding their alcohol use (e.g., I had trouble controlling my drinking) in the past 30 days on a five-point scale ranging from 1 (*never*) to 5 (*almost always*). Items are summed to create a total raw score, ranging from 7-35 with high scores indicating high alcohol use. Raw scores were converted to *T* scores, with a mean of 50 and standard deviation of 10. *T* scores of 60 are considered to represent clinically meaningful elevations in alcohol use (Pilkonis et al., 2014). This measure has demonstrated strong reliability ( $\alpha = .95$ ; Pilkonis et al., 2013) and validity ( $r = .79$  with the Alcohol Use Disorder Identification Test (AUDIT); Pilkonis et al., 2016), and demonstrated strong reliability in this study ( $\alpha = .90$ ).

**Disordered Eating.** The Eating Disorders Examination Questionnaire Short Form (EDE-QS; Gideon et al., 2016) is a brief, 12-item self-report tool designed to screen for symptoms of an eating disorder. Participants rated their agreement with items related to eating behaviours and weight concerns from 0 (*Not at all*) to 3 (*Markedly*). Scores from 12 items are summed to create a total raw score. High scores in the EDE-QS indicate high eating disorder symptomology, with a score of 15 indicating the presence of a probable eating disorder (Prnjak et al., 2020). The EDE-QS is advantageous as it is designed to assess a range of eating disorder symptomology as opposed to targeting a specific type of eating disorder (e.g., anorexia nervosa). The EDE-QS showed high internal consistency ( $\alpha = .91$ ), correlated highly with other validated measures of disordered eating, and effectively distinguished between people with and without eating disorders (Gideon et al., 2016). This measure showed strong reliability in this sample ( $\alpha = .92$ ).

**Post-Traumatic Stress Disorder.** The Post-Traumatic Stress Disorder (PTSD) Checklist for Diagnostic and Statistical Manual (DSM-5; PCL-5; Weathers et al., 2013) assessed trauma symptomology. The PCL-5 is a 20-item self-report measure that assesses the 20 symptoms (e.g., “Repeated, disturbing, and unwanted memories of the stressful experience?”) associated with PTSD from the DSM-5. The PCL-5 has a variety of purposes, including detecting PTSD symptomology. Total symptom severity is calculated by summing the scores for each of the 20 items (range: 0-80). Scores between 31-33 on the PCL-5 are indicative of probable PTSD. The PCL-5 shows high internal consistency and validity and is considered to be a reliable and valid measure to use among college students (Blevins et al., 2015), and showed strong reliability in this study ( $\alpha = .94$ ).

**Distress.** Kessler 6-item Psychological Distress Scale (K-6; Kessler et al., 2010) is a brief, self-report tool designed to assess the number of distress symptoms experienced over the past 4 weeks. Participants indicated their responses to each of six items using a Likert scale ranging from 0 (*None of the time*) to 4 (*All of the time*) with higher scores indicating a higher frequency of symptoms. Scores from the six items are summed to attain a composite psychological distress score that can range from 0 to 24. Low scores indicate low levels of psychological distress, and scores ranging from 5 to 13 are considered clinically significant (Prochaska et al., 2012). The K-6 is considered a reliable and valid method of assessing psychological distress among (young) adults (Ferro, 2019; Kessler et al., 2010) and student-athletes ( $\alpha = .86$ ; Sullivan et al., 2019) and demonstrated good reliability in this study ( $\alpha = .87$ ).

### ***Mental Health Literacy (T1)***

A broad exploratory examination of participants' mental health literacy was assessed using the Brief Mental Health Literacy Scale (Reynolds et al., in preparation). This measure is based on Jorm and colleagues' (1997) definition of mental health literacy, "knowledge and beliefs about mental disorders which aid their recognition, management, or prevention" (p. 182). This four-item measure asked participants to rate the extent to which they are knowledgeable about the signs, possible causes, types of available treatment options and how to go about seeking professional help for mental health problems on a scale ranging from 1 (*Not at all*) to 5 (*extremely*). Participants' scores from the four items are summed and divided by four to create an overall grand mean mental health literacy score. Final grand mean scores are associated with the following levels of mental health literacy: 1 (*none*), 2 (*some/low*), 3 (*moderate*), 4 (*high*), and 5 (*very high*). The Brief Mental Health Literacy Scale demonstrated a strong level of reliability among a large Canadian sample of adults ( $\alpha = 0.91$ ; Reynolds et al., in preparation), and in this sample ( $\alpha = 0.87$ ).

### ***COVID-19 Questions (T3)***

To contextualize participants' mental health during the third time-point (T3), that took place shortly following the onset of the COVID-19 pandemic (May 2020), participants responded to closed and open-ended questions regarding COVID-19 and how it has impacted them. Participants indicated whether they had been tested or diagnosed with COVID-19 and whether they had displayed symptoms that they were concerned about. They also reported if they were considered an essential service worker. Participants indicated their agreement with eight close-ended questions about the impact of COVID-19 on various domains including their sport involvement (i.e., competition schedule and plans, training, relationships with teammates and coaches), mental health and engagement in health behaviours (e.g., healthy eating and sleep),

substance use, academics, and access to supports and health services. Participants responded to closed-ended, Likert-style questions using a five-point scale ranging from 1 (Not at all) to 5 (Extremely). Participants also indicated what services or supports that they have accessed during the pandemic and which services that they have been unable to access that would be helpful for them.

To further contextualize participants' responses to the close-ended questions, they were asked open-ended questions about the impact of COVID-19 their sport involvement, health behaviour, and mental health (i.e., In what way(s) has COVID-19 impacted your i) sport training, ii) competition or competitive plans, iii) engagement in health behaviours, iv) use of substances, v) your academic year or plans and vi) your mental health?). They were also asked about potential benefits of the COVID-19 pandemic (i.e., how has COVID-19 impacted you positively, if at all?). Finally, they indicated how they have maintained their connection with their teammates or coaches, their primary concerns related to COVID-19 and their sport involvement and other areas of their lives and described strategies that they have used to manage stress during the pandemic. All questions are outlined in Appendix B.

### **Analyses**

All quantitative data were analyzed using SPSS, Version 27.0 (Armonk, NY: IBM Corp.); data were screened for missingness and outliers, then examined for violations of test assumptions. Two outcome variables, alcohol use and substance use, violated assumptions of normality due to floor effects (low reported use in this sample) and thus, descriptive statistics and nonparametric statistical tests were utilized. Of those who completed the questionnaires, there was limited missing data for T1 and T3 (< 5% missing). As such, mean substitution was used for individuals who had missed an item of a scale (Tabachnick & Fidell, 2007). Participants who had

missed an entire response set were not included in the analysis for that particular variable. Specific quantitative (i.e., descriptive statistics, correlations) and qualitative analyses (i.e., reflexive thematic analysis) related to each of the study's objectives are described below.

### ***Primary Objective***

To address the primary objective, to assess the scope of symptoms of mental health problems, the presence of clinically meaningful mental health symptomology (expressed as a percentage) was calculated as the proportion of the number of participants who had exceeded a clinical cut-off score for each of the mental health outcome variables of interest, relative to the total number of participants. Descriptive analyses were repeated at all time points. However, to address this objective I focused on the presentation of data at T1.

### ***Secondary Objective***

To answer the second research question - what factors are related to student-athletes' mental health symptoms? - I conducted a correlational assessment of covariates, including sociodemographic variables such as age, gender, and ethnicity and each of the mental health variables, to determine if there were any significant relationships among the variables that I measured at T1. Descriptive analyses (mean and standard deviation) were conducted to first determine the level of mental health literacy among this sample. Correlational analyses were conducted to determine the relationship between mental health literacy and demographic factors (e.g., age, gender, sport type), symptoms of mental health problems, previous mental health diagnosis, and prior help-seeking behaviour. Mental health literacy was only assessed at T1, and thus, correlational analyses were conducted with outcome variables that were obtained at this time point.

### *Third Objective*

**Statistical Analyses.** Finally, to answer the third question- what is the impact of COVID-19 on student-athletes' mental health symptomology and their access to supports? – I conducted a series of paired sample independent *t*-tests across different continuous dependent variables, with composite scores on each of the scales that were used to assess mental health symptomology (i.e., depression, anxiety, substance and alcohol use, distress, PTSD, and disordered eating) as the outcome variables, to determine if student-athletes' mental health symptomology changed across time points related to the COVID-19 pandemic (T1 vs. T3). As previously mentioned, two of the outcome variables (alcohol and substance use) violated the assumptions of normality due to floor effects at all time points. Nonparametric (Kruskal-Wallis) tests were used to compare these variables across the two time points. Based on previous research (Grubic et al., 2021), I hypothesized that the relationship between time (COVID-19) and mental health symptomology would be negative, whereby participants' mental health would significantly decrease between T1 and T3. Descriptive statistics (described above) were obtained to describe participants responses to the closed ended questions that included the previous mental health measures that were used at T1 as well as some additional questions with specific relevance to COVID-19 that were included at T3.

**Reflexive Thematic Analysis.** A secondary approach to evaluating the impact of the COVID-19 pandemic on student-athletes' mental health involved the use of open-ended questions to obtain more in depth, experiential perspectives of this population. For these qualitative data, reflexive thematic analysis (Braun & Clarke, 2006, 2019, 2022) was used to generate main themes across participants' responses. This method has been used across many disciplines and is considered an appropriate analytical method when conducting qualitative

research in psychology due to its flexibility, ability to generate themes that are accessible to the general public, and consideration of discrepant and divergent data (Braun & Clarke, 2019, 2022). Further, reflexive thematic analysis is a flexible and accessible method for analysis that allows for rich and nuanced descriptions of a health-related concept (Braun & Clarke, 2022). Reflexive thematic analysis involves the identification, organization, interpretation, and reporting of patterns of meaning as they relate to the research question, or themes, across a data set that underscore participants' responses (Braun & Clarke, 2022). Reflexive thematic analysis emphasizes the researcher's awareness of their knowledge, theoretical assumptions, and subjectivity in analysis and involves active reflection and transparency with these factors. Themes are generated through an interaction of the researcher's subjectivity, theoretical assumptions, and knowledge and the data themselves through active and thoughtful engagement with the data (Braun & Clarke, 2019, p. 594). Data analysis followed Braun & Clarke (2019, 2022) and involved familiarizing myself with the data (i.e., through transcription, reading and re-reading transcripts, and recording initial thoughts), developing initial codes, combining codes into initial themes, reviewing and verifying themes, naming and defining themes and developing a written report.

I took an inductive approach to reflexive thematic analysis, which involved coding the data for themes as they pertained to the research question, without being bound by specific themes that were identified in previous research, and thus, these were closely tied to the data (Braun & Clarke, 2006). This approach allowed me to generate main themes from the data and compare and contrast commonalities and variations in participants' experiences. An inductive approach to thematic analysis allowed me to integrate my themes with the broader literature on the topic of mental health in sport when writing the final report and identify consistencies and

discrepancies with the existing literature (Braun & Clarke, 2006). Considering these objectives, using reflexive thematic analysis is advantageous as findings can be translated to be easily understood by the general public and can inform policy development (Braun & Clarke, 2006, p. 97).

**Rigor.** Recommendations were followed to ensure analytic rigor (Braun & Clarke, 2019; Tracy, 2010). As previously mentioned, Braun and Clarke (2019) emphasize the importance of reflective, thoughtful engagement on the part of the researcher when generating a creative, nuanced, and interpretive narrative about the data (p. 594) that acknowledges the researchers' biases and assumptions. As the lead researcher, the data interpretation was shaped by my personal experiences and background as a white, cis-gender female with a middle-class upbringing who has been privileged to access post-secondary education and, as a result, I have a master's degree in Kinesiology and am currently a Ph.D. candidate in clinical psychology. Further, I have a longstanding interest in sport given my involvement in sport throughout my lifetime and interest in health broadly, in addition to passion for mental health as a clinical psychology graduate student. While my knowledge in sport and clinical psychology likely benefitted the analytic process, I acknowledge that I have a personal interest in increasing access and support for mental health generally, and specifically in sport, which undoubtedly influenced my research trajectory and interpretation of the data.

I practiced self-reflexivity throughout the analytic process by engaging in regular self-reflection and practices that enhance transparency throughout the research process (i.e., maintaining an audit trail, developing and revising initial narrative themes, and reflecting about convergent and divergent themes throughout the analysis). As an additional measure to ensure analytic rigor, the research team included multiple coders in the analysis -- two (LC & KR) --

who independently analyzed the data and met together to discuss reflections and integrate findings into emergent themes and manage discrepancies in the coding process. Despite this awareness and these practices, experiences and biases as psychology professionals/trainees who work in sport certainly influenced the development of the open-ended questions and how the data were conceptualized.

Further processes were followed in order to ensure analytic rigor including staying open throughout data analysis to divergent themes and subthemes; challenging the analysis and emergent thematic development; testing relationships- challenging patterns and themes in the data, remaining open to changes, including discrepant views; and capitalizing on outliers- reflecting on what might be missing from the data (Thorne & Derbyshire, 2005; Tracy, 2010).

## **Results**

### **Objective 1: Rates of Mental Health Problems at T1**

#### *Sample Characteristics*

*T1.* Participant characteristics are presented in Table 1. Participants who completed the T1 survey were adults 18+ (M age = 19.66) who primarily identified as female (59%) and White (70%) and represented a variety of sports. A total of 29% of participants reported receiving a previous mental health diagnosis (n = 40), and 57.5% of those individuals reported that they sought some form of professional help for their mental health. Table 1 summarizes the types of help-seeking that these individuals engaged in. It is important to note that some participants provided multiple help-seeking strategies in their responses, and thus the number of help-seeking strategies listed is higher than the number of individuals who sought mental health support.

**Table 1***Participant Characteristics for T1*

Characteristic	N	%
Ethnicity		
White	98	70
Indigenous	13	9
Mixed	7	5
Black	6	4
South Asian	6	4
Filipino	5	4
Other	5	4
Marital Status		
Single	86	61
Ongoing Relationship	54	39
Living Situation		
At Home	92	66
With Roommates	43	31
On Own	5	4
Sport Type		
Track and Field	42	30
Soccer	31	22
Hockey	28	20
Basketball	15	11
Swimming	9	6
Volleyball	7	5
Football	6	4
Golf	1	1
Did Not Specify	1	1
Gender		
Female	82	59
Male	57	41
Unspecified	1	.7
Previously Diagnosed with a Mental Health Disorder	40	29
Sought Help	23	58
Types of Mental Health Help-Seeking		
Counsellor/Therapy	12	
Family Doctor	5	
Medication	4	
Psychologist (“sport” n = 1)	4	
Crisis Resources/Hospital	2	
Other	2	

I found that 46% of participants sampled scored above the clinical cut-off for any of the symptom measures. In terms of specific mental health problems, 47.86% (n = 67) of participants exceeded the clinical cut-off for mild to severe depressive symptoms, 60.71% (n = 85) exceeded the clinical cut-off for mild to severe anxiety symptoms, 52.86% (n = 74) exceeded the clinical cut-off for moderate to severe mental distress, and 8.57% (n = 12) exceeded the clinical cut-off for a probable eating disorder. A total of 61 participants described experiencing a traumatic event and 38.33% (n = 46) of the total sample exceeded the clinical cut-off on the PCL-5 indicating probable PTSD. A total of six participants (4.29%) exceeded the clinical cut-off for alcohol use. No participants exceeded the clinical cut-off for substance use. These results are presented in Table 2.

**Table 2***Estimates of Mental Health Problems at T1*

Variable	Clinical Cut-off Values							
PROMIS Depression	Normal (< 55)		Mild (55 – 64)		Moderate (64-74)		Severe (>75)	
	N	%	N	%	N	%	N	%
	73	52.15	56	40	11	7.86	0	0
PROMIS Anxiety	Normal (< 55)		Mild (55 – 64)		Moderate (64-74)		Severe (>75)	
	N	%	N	%	N	%	N	%
	55	39.29	65	46.43	20	14.29	0	0
Kessler Distress Scale (K6)	Normal		Moderate (5 <= K6 <= 13)		Severe (K6 >= 13)			
	N	%	N	%	N	%		
	66	47.14%	60	44.78	14	10.45		
PTSD Checklist for DSM-5 (PCL-5) (n = 61 endorsed)					(> 31)			
	46						38.33	
Eating Disorders Examination					>= 15			
	12						8.57%	

Questionnaire- Short Form	Normal (< 60)		Clinically Elevated (>= 60)	
	N	%	N	%
PROMIS Alcohol Use	134	95.7	6	4.3
PROMIS Substance Use	Normal (< 60)		Clinically Elevated (>= 60)	
	140	100	0	0
Any Clinically Significant Symptoms	N		%	
	64		46%	

*Note:* ‘Any Clinically Significant Symptoms’ was defined as the number of participants in the sample who scored above the clinical cut-off for any of the symptom measures.

### **Objective 2: Factors Related to Symptoms of Mental Health Problems**

Results of the correlational analyses are presented in Table 3. Correlational analyses revealed significant positive relationships between gender and depression, anxiety, PTSD, and distress, with women reporting higher rates of these mental health outcomes compared to men. Overall, all mental health symptoms were significantly positively related to one another with small to large effects ( $r > .10$  for all variables). The mean of mental health literacy in this sample was 2.76 ( $SD = .90$ ) and is considered low to moderate. Notably, nearly three quarters of participants ( $n = 92, 69\%$ ) scored three or lower on this measure, indicating low to moderate mental health literacy. There were no significant relationships between mental health literacy and socio-demographic variables. Having received a previous mental health diagnosis ( $p < .05$ ) and anxiety ( $p < .05$ ) were positively related to mental health literacy with small effect sizes ( $r > .21$ ). Mental health literacy was not significantly related to other outcome variables or past reported psychological help-seeking.

**Table 3***Descriptive Statistics and Correlations of Main Variables*

Measure	1	2	3	4	5	6	7	8	9	10	<i>M</i>	<i>SD</i>	$\alpha$
1. Depression	-	.70**	.70**	.10	.18*	.40**	.68**	.10	.25	.25**	12.8	4.9	.90
2. Anxiety	.70**	-	.75**	-.04	.10	.31**	.59**	.21*	-.03	.30**	13.9	74.9	.90
3. Post-Traumatic Stress	.**	.**	-	.14	.08	.47**	.69**	.17	.15	.34**	41.74	14.69	.94
4. Alcohol Use				-	.25**	.17*	.09	.13	-.06	-.13	10.18	4.15	.90
5. Substance Use					-	.07	.12	.06	.07	-.10	7.27	.94	.97
6. Disordered Eating						-	.31**	.03	.05	.33**	5.00	5.45	.92
7. K6 Distress							-	.17	.12	.19*	5.99	4.50	.87
8. Mental Health Literacy								-	.05	.16	2.76	.90	.87
9. Past Help-Seeking									-	.22			
10. Gender										-			

\*  $p < .05$ \*\*  $p < .01$ *Note:* Gender was coded as follows: Male = 0, Female = 1.**Objective 3: COVID-19 Impact on Mental Health**

Descriptive statistics for the mental health variables for participants at T3 are presented in Table 4. To determine if there were differences between responders and non-responders for the T3 timepoint, correlational analyses were conducted using mental health symptoms at T1 and sociodemographic variables. There was no significant relationship between mental health variables at T1, sociodemographic variables, and completion of T3. A series of paired sample *t*-tests revealed that eating disorder symptoms were significantly higher at T3 compared to T1 ( $p =$

.05) and the size of this effect was small ( $d = .30$ ). There were no additional significant differences in any of the mental health variables between T1 and T3. Examination of effect sizes indicated that depression and distress symptoms decreased while anxiety and PTSD symptoms increased from T1 to T3 with small effect sizes ( $d > .10$ ). Visual inspection of the data revealed that some participants' mental health symptoms increased while others' decreased. Subsequent analyses were conducted to determine if demographic variables (e.g., gender, age) were related to participants' mental health symptoms at T3. Results of a series of independent sample t-tests revealed that gender significantly impacted participants' anxiety symptoms at T3 ( $p = .03$ ) with a large effect size ( $d = .77$ ) whereby women reported significantly higher anxiety symptoms at T3 compared to males. Kruskal-Wallis nonparametric statistical tests comparing participants' substance and alcohol use across timepoints showed that there were no significant differences in substance use ( $p = .56$ ) or alcohol use ( $p = .18$ ) between T1 and T3 and effect sizes were small. Further, when asked in the open-ended questions about substance and alcohol use, the majority of participants ( $n = 18, 64\%$ ) reported no change in their substance use, with only 25% ( $n = 7$ ) reporting a slight increase. Results from these analyses can be found in Table 5.

**Table 4***Estimates of Mental Health Problems at T3*

Variable	Clinical Cut-off Values							
PROMIS Depression (T3)	Normal (< 55)		Mild (55 – 64)		Moderate (64-74)		Severe (>75)	
	N	%	N	%	N	%	N	%
	15	53.57	12	42.86	1	3.57		
PROMIS Anxiety (T3)	Normal (< 55)		Mild (55 – 64)		Moderate (64-74)		Severe (>75)	
	N	%	N	%	N	%	N	%
	7	25	17	60.71	4	14.29		
Kessler Distress Scale (T3)	Normal		Moderate (5 <= K6 <= 13)		Severe (K6 >= 13)			
	N	%	N	%	N	%		
	14	50	13	46.43	1	3.57		
PTSD Checklist for DSM-5 (PCL-5) (T3) (n = 12 endorsed)			N					
			12		(> 31)		42.86	
Eating Disorders Examination Questionnaire-Short Form (T3)			2		>= 15		7.14	
PROMIS Alcohol Use (T3)			1		> 60			
PROMIS Substance Use (T3)			0		> 60		0	

**Table 5***Comparisons of Mental Health Symptoms Across Timepoints (T1 and T3)*

Variable	Time 1 Mean (SD)	Time 3 Mean (SD)	<i>p</i>	Effect Size
Depression	13.36 (4.25)	12.29 (3.3)	.11	.24
Anxiety	13.39 (4.8)	13.86 (4.0)	.31	-.10
K6	5.81 (3.96)	5.15 (3.7)	.22	.15
PCL-5	43.14 (9.37)	44.14 (8.3)	.40	-.10
EDE-QS	3.75 (4.57)	5.21 (5.1)	.05*	-.32
Alcohol Use	9.25 (2.2)	8.86 (3.3)	.20	.10
Substance Use	7.18 (.78)	7.14 (.80)	.60	.03

\*  $p < .05$ 

All 28 participants who completed the mental health survey at T3 also completed the closed and open-ended questions surrounding the impact of COVID-19. The majority of participants identified as female ( $n = 18, 64\%$ ) and 25% ( $n = 7$ ) of respondents indicated that they were employed as an essential service worker. No participants reported having contracted or having undergone testing for COVID-19 at the time of data collection. Participants reported consuming an average of 82 minutes of information related to the pandemic per day. A summary of participants' quantitative responses related to the perceived impact of the COVID-19 pandemic on various domains of their lives (e.g., training and competition, academics, substance use, health behaviour, and mental health) and their ability to access supports are presented in Table 6. The most commonly reported support that participants wished that they could access was massage therapy ( $n = 13, 46\%$ ).

**Table 6***COVID-19 Questions*

Variable	<i>M</i>
Areas of impact	
Sport Training	4.1
Competition	3.9
Mental Well-Being	3.0
Sleep	2.4
Diet	2.5
Use of Substances	1.5
Physical Fitness	3.0
Academics	2.5
Employment or Finances	3.3
Services Participants Have Accessed	n
Family Doctor	5
Physiotherapist	1
Athletic Therapist	4
Massage Therapist	0
Counsellor	2
Psychologist	3
Dietician	2
Other (e.g., Osteopath, pharmacist, chiropractor)	6
Services Participants Wished to Access	n
Family Doctor	7
Physiotherapist	6
Athletic Therapist	10
Massage Therapist	13
Counsellor	0
Psychologist	6
Dietician	7
Other (e.g., chiropractor, support groups)	3

Utilizing reflexive thematic analysis, main themes related to the open-ended questions regarding the impact of COVID-19 on student-athletes' mental health that were generated included Navigating Uncertainty, Adapting to Changes, and Unforeseen Benefits. A summary of

the main themes, subthemes, and participant quotes from the open-ended questions are presented in Table 7.

**Table 7**

*Summary of Qualitative Data Themes and Supporting Quotes*

Theme	Participant Quotes
<b>Navigating Uncertainty</b>	<p><i>All competitions for the remainder of the season have been cancelled. Still unsure of how next season will go (Participant 11).</i></p> <p><i>My team does not know if we are going to have a season at all due to the pandemic. However, if it happens the season will be completely different in length and structure (Participant 111).</i></p> <p><i>Lots of time to think about things and can lead to overthinking/worry (Participant 17).</i></p> <p><i>Feelings of restlessness and struggling to feel productive due to the abundance of time and no structure (Participant 59).</i></p> <p><i>Without access to facilities, I feel like I am losing strength and ability and I am worried that when we are eventually allowed back to train that I will be struggling to perform like I used to. I'm worried it will take a long time before I can reach the level I was at before the pandemic (Participant 11).</i></p> <p><i>I am worried that budget cuts will impact my next season, including scholarships and trips (Participant 17).</i></p>
Missed Opportunities and Loss of Potential	<p><i>Trip abroad to play exhibition games in August was cancelled (Participant 77).</i></p> <p><i>Exercise has definitely changed. I've been having trouble finding motivation to exercise during this time. It has also been difficult to adapt to working out from home and training on my own from home (Participant 95).</i></p> <p><i>I find it much harder to complete tough workouts and do all workouts that I am supposed to do without having my group to do them with. I also have been coming back from injury which makes it harder to do workouts alone when I'm not as strong as I was (Participant 90).</i></p> <p><i>I just want to have a season. I can train on my own, and I will ensure I'm prepared. All I want is the opportunity (Participant 59).</i></p>

*I was hoping to take a summer class but the ones I wanted aren't offered now (Participant 2).*

**Adapting to Changes**  
Resilience and Flexibility

*I find that I have to make a schedule every day to be productive (Participant 92).*

*I won't say I've been doing terrible as I am trying to take as many positives out of the situation as I can (Participant 110).*

*I have participated in group Zoom calls and group chats over TeamSnap, as well as logged workouts in google drive for my coach to view (Participant 125).*

*Can't use a gym anymore so I have no real means of training with weights. Have to make the best of the situation by focusing more on speed/agility, core exercises and body weight exercises. Lots of running and field training as well (Participant 59).*

*I give myself daily tasks and goals so I have something to work towards (Participant 8)*

**Unforeseen Benefits**

“Time to Take a Step Back”:  
Shift in Priorities and Focus

*I am finding new hobbies to do which is really fun, I try to look at all the little things that can make a person happy that I used to take for granted (Participant 92).*

*Time to take a step back from the busy life and schedule that I regularly keep. I get to still work from home which makes it easier to get my workouts in and not have to worry about parking downtown or taking the bus. More time with my mom (Participant 110).*

*Have more time to eat and plan healthy meals (Participant 17).*

*It has given me more time to organize and readjust my personal life and my priorities (Participant 133).*

*I had more time to study for exams which made me feel less anxious when it came time to write them. I have also come to appreciate all of the little things we took for granted before this, so I feel I'll come out more grateful and mindful when this is all over (Participant 125).*

*I haven't had any additional stress, in fact I've been the least stressed I've been since I've started university (Participant 16).*

*I think this is a time I am able to self reflect a lot (Participant 113).*

*I have certainly done a good job not focusing on the negative, but I feel like from a mental health standpoint I am almost benefitting from Covid-19 and self isolation. I don't go out and see people anymore so I'm at home all the time in solitude with family. In a sense, I'm in a kind of cocoon where I can't feel the fears of social anxiety, almost like I'm in hiding. It feels comfortable but I know it isn't good to stay here (Participant 59).*

*Got to spend more time with my family. Increased appreciation for self improvement and the little things in life (Participant 77).*

“It's OK to Slow Down”

*More time with family, kind of showed me who true friends were, gave me time to recover and work at my own pace to achieve my goals and heal from previous injuries (Participant 108).*

*Time to slow down. I found myself very burnt out this year after trying to balance everything (Participant 113).*

*That it's ok to slow down and just hang out for a bit for my own well being (Participant 77).*

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### **Navigating Uncertainty**

Central to participants' responses was the sense of uncertainty that was caused by the pandemic. This first main theme reflects the general sense of uncertainty and worry that persisted across participant's responses and many domains of their lives. As their sport commitments were abruptly cancelled and training was discontinued, participants expressed growing uncertainty and worry about their future in sport, school, and their personal lives.

Participants expressed that the uncertainty of their sport involvement was top of mind. Several participants indicated that they were unable to train for their sport as effectively due to lack of space and equipment and distancing requirements (for team sports) which contributed to additional anxiety and uncertainty about their performance when and if they returned to their sport. At the time of data collection, spring sporting events had already been cancelled as well as several pre-season or exhibition events that were slotted to take place prior to beginning the fall semester. However, it was uncertain whether training and competition would commence in the

fall, whether athletes would be permitted to train together or not, and whether they would continue with online or in-person training platforms. The uncertainty surrounding their sport involvement prompted many participants to reflect about their futures in sport and whether they would continue or retire from sport.

Participants also expressed worries about finances related to scholarships, inability to work, and difficulty paying their bills in addition to worries about returning to school, what format learning would take, and whether their academic pursuits would be impacted by the pandemic. This sense of uncertainty was evident in the way that participants responded to questions. For instance, participants often phrased their answers as questions, reflecting their sense of confusion and uncertainty surrounding the situation in numerous areas of their lives (e.g., sport, personal lives, and academics). Though the majority of participants alluded to experiencing some anxiety and worry related to the uncertain nature of the pandemic, there was variability across participants. As described later, many participants described feeling relieved because they recognized the opportunity for recovery due to COVID-19 restrictions. This main theme was comprised of one subtheme: “Missed Opportunities and Loss of Potential”.

### ***Missed Opportunities and Loss of Potential***

This subtheme reflects the sense of loss, disappointment, and concern about unrealized potential that participants felt as they navigated the uncertain circumstances related to COVID-19. This theme represents participants’ experiences of missed opportunities (i.e., training, competition, social contact) and the impact of these missed opportunities due to the pandemic that they described. Participants reflected about the experiences that they had looked forward to that were now cancelled or postponed. They described daily experiences (e.g., training alone, no access to an athletic facility, not seeing family and friends) and larger events that they were

looking forward to (e.g., competitions, exhibition games and preseason trips) and reflected about experiences of loss in the present as well as future dreams and goals that they were missing out on. For some, who were earlier in their career, they struggled to build momentum and consistency in their sport due to not having competition. Others were forced into retirement early. Several participants noted the concern about missing out on their final competitive seasons due to graduation and being concerned that they would miss out on their final years of eligibility. A small number of participants noted that their opportunities to continue with their sport at a recreational level, post-graduation, was also impacted. Participants also described a sense of loneliness related to not seeing their teammates and loved ones, which exacerbated their sense of disappointment and loss. This physical isolation impacted participants' motivation to train and stay engaged with their sport. There was a sense of lack of enthusiasm (training feeling boring and effortful) without the social support from participants' teammates and the promise of competition which made it challenging for participants to feel motivated to train, though nearly all participants continued to train in some manner.

These general feelings of missing out and disappointment that participants expressed underscored participants' concern about their athletic skills and abilities and returning to sport after not being able to train to their full potential. They expressed concern that they were losing athletic ability due to limitations in training, facility closures, and lack of competition which they worried could impact their sport involvement and contribute to them not realizing their full athletic potential when they returned to their regular training and competitive demands.

### **Adapting to Changes**

Due to the significant uncertainty surrounding the pandemic that student-athletes were facing, all participants spoke of the many changes that were evolving due to the COVID-19

pandemic across numerous domains of their lives. This second main theme, “Adapting to Changes”, represents the ways that participants were attempting to manage, adapt, and adjust to the public health restrictions and uncertainty surrounding COVID-19. Indeed, there was a general sense of participants working on adapting the way that things were done and trying to make the most out of the pandemic related changes. There were also significant shifts in participants daily schedules in demands, with significantly reduced time required for their sporting commitments. While some participants spoke about struggling to adapt to the increased flexibility and down time, many described findings ways to optimize this change in demands. Most participants indicated that they were sleeping more as a result, which participants perceived to be beneficial but also bordering on excessive. This theme was comprised of one subtheme: “Resilience and Flexibility”.

### ***Resilience and Flexibility***

In adapting to the constantly changing circumstances and uncertainty surrounding the COVID-19 pandemic, participants alluded to helpful strategies and characteristics that they utilized to the navigate these changes, which represents the second subtheme, “Resilience and Flexibility”. For instance, participants described using online platforms to stay connected to their teammates and coaches and for helping them to stay accountable with their training (e.g., logging workouts) as a way of managing the cessation of in-person training and cancelled competition. Everyone also described shifting their academic plans to online learning, changing their academic plans (e.g., delaying graduation and coursework completion). Many noted that they were finding ways to stay well and optimize the situation. Some participants alluded to their sporting skills serving as sources of resilience during the pandemic (e.g., trying to stay active). Participants spoke about strategies that they used to shift their perspectives, such as focusing on

other aspects of their sporting performance (e.g., speed and agility vs. sport specific skills), setting daily goals, and trying to maintain some sort of routine. Though the change in routine was a challenge, a small number of participants also reported enjoying the increased flexibility. For instance, some participants noted an increase in exercise engagement due to having increased free time which allowed them to exercise “whenever they wanted to”.

### **Unforeseen Benefits**

This final main theme represents the benefits of the COVID-19 pandemic and associated changes that participants described, despite the numerous challenges associated with the COVID-19 pandemic, and the extensive impact that it had on athletes’ sport involvement. Participants were asked about the benefits of the pandemic directly, but they also described benefits during other questions that did not specifically prompt for this. This main theme was comprised of two subthemes: “Time to Take a Step Back”: Shift in Priorities and Focus; and “It’s OK to Slow Down”.

#### ***“Time to Take a Step Back”: Shift in Priorities and Focus***

Participants reported that the pandemic prompted a shift in priorities and focus, beyond their sport involvement, that was only possible due to sporting events being cancelled and training demands being significantly reduced. Several participants alluded to the disruptions due to the pandemic providing an opportunity to engage in self-reflection and re-evaluate their priorities, personal identity, and values. Participants reflected about how they wanted to spend their time now that they were not bound by strict schedules and sporting demands. Participants described reconnecting to old or learning new hobbies and taking more time to focus on self-care. The most commonly reported benefit of the COVID 19 pandemic that participants reported

was having more time with family. Some participants noted that the pandemic permitted them to move back to their hometowns and live with family/pets again which was positive for them.

Some participants noted increased time to focus on academics and sport training (at home). Though this was not common across participants, one participant noted that they have increased job security due to working in the field of infectious diseases. Many participants reported increased time spent outdoors and engaging in physical activity as a way to manage stress during the pandemic.

### ***“It’s OK to Slow Down”***

For most participants, the opportunity that the pandemic provided was to slow down and shift their priorities, which contributed to *positive* mental health, despite the disappointment and worry regarding their sport involvement. They attributed this to having increased time and flexibility to engage in regular self-care, personal hobbies and interests, and family time. Certainly, there was a shared sense of reduced time urgency and appreciating the shift to a slower pace compared to their typically fast-paced and full schedules. Many participants noted the benefits of having more time to slow down and focus on restorative and restful activities such as self-care, relaxation, and recovery. Some participants noted that they were able to sleep more, focus on recovering from old injuries, and generally relax to combat feelings of burnout prior to the pandemic. Indeed, several participants noted that their mental health had improved with time over the pandemic due to having increased available time and flexibility. Many participants recognized that a break from their typical responsibilities as student-athletes was much needed and revitalizing and likely would have never happened prior to the pandemic. Indeed, several participants noted that the importance of slowing down was a newly realized benefit and there

was a sense that participants were becoming increasingly comfortable with giving themselves time to rest, that they did not appreciate prior to the pandemic as student-athletes.

### **Discussion**

This was one of the first studies to my knowledge to provide an estimate of a broad range of common mental health problems among a sample of student-athletes from a central Canadian university and examine factors related to mental health problems (e.g., mental health literacy). Further, this study provided a quantitative and qualitative assessment of the impact of COVID-19 on student-athletes' mental health at the onset of the pandemic. Student-athletes in this sample reported heightened rates of symptoms of mental health problems and low to moderate rates of mental health literacy. Mental health literacy was significantly related to current anxiety and having received a past mental health diagnosis with small effect sizes. Only eating disorder symptoms differed significantly between T1 and T3 with a moderate effect size. There was no significant relationship between the COVID-19 pandemic and student-athletes' symptoms of the other mental health problems that were assessed, though examination of effect sizes indicated that depression and distress symptoms decreased while anxiety and PTSD symptoms increased from T1 to T3 with small effects. Women's anxiety was significantly higher than men's at T3 and the effect size was large. Qualitative findings help to contextualize these results and further understand how pandemic-related disruptions impacted athletes.

### **Estimates of Mental Health Problems**

While a direct comparison cannot be made for some variables due to the use of different measures, participants in this study reported heightened symptoms of depression (48%), anxiety (60%), PTSD (38%), and eating disorders (9%) compared to university students generally prior

to (17% with depression, 22% with anxiety; ACHA, 2018; 9% with PTSD, Read et al., 2011) and during the COVID-19 pandemic (26% with depression, 33% with anxiety, and 6.3% with eating disorders, ACHA, 2022). Further, athletes in the current study reported comparable rates of severe psychological distress (11%) as a sample of university students (15%; ACHA, 2022). Though results may be slightly over-estimated due to being obtained via self-report, these results add to the existing literature base that suggests that these common mental health problems are prominent among athletes and a subgroup of elite athletes, student-athletes.

Findings from the current study are consistent with existing research that has examined these symptoms among student-athletes (Cox et al., 2017; Wolanin et al., 2016) and elite athletes generally (Gulliver et al., 2015; Kerr et al., 2019). For example, data on student-athlete mental wellness revealed that approximately 21.7% to 33.2% of student-athletes reported clinically significant depressive symptoms (Cox et al., 2017; Wolanin et al., 2016), which is higher than current reports of non-athlete university peers (Auerbach et al., 2018). Participants in the current study also reported heightened symptoms of eating disorders (9%) compared to a general university student sample (6.3%, ACHA, 2018). Notably, it is possible that the prevalence of disordered eating among student-athletes, and athletes generally, may be underestimated. For instance, Kerr and colleagues (2019) found that while 16% of elite athletes reported engaging in disordered eating behaviours, only 4% had received a diagnosis or treatment related to disordered eating and suggests that athletes may fail to recognize and seek help for disordered eating behaviours. Finally, no participants in this study exceeded the clinical cut-off for substance use and 4% exceeded the clinical cut-off for problematic alcohol use. The rates of alcohol use observed in this sample are higher than those reported among a general university sample (1.3% reported a previous diagnosis of an alcohol or substance use problem, ACHA,

2022). The heightened rates of alcohol use that I observed may be related to the timing of the survey administration (i.e., September 2019) when many athletes are returning to their sport after a summer break (measure encompassed the last 30 days), when athletes' alcohol consumption may have been higher due to not being in their active competitive season. However, other studies have found increased rates of alcohol use among university student-athletes compared to university students in general (Mountjoy et al., 2023).

Results are additive to the scientific literature base surrounding mental health in sport as I examined a range of mental health problems among Canadian student-athletes. Previous studies conducted among Canadian student-athletes have assessed general mental health functioning (e.g., Van Slingerland et al., 2018) and psychological distress using the K6 (Sullivan et al., 2019). These researchers found that 19.8% of respondents exceeded the clinical cut-off of 13 indicating likely severe mental illness (Sullivan et al., 2019). Fewer participants in the current study exceeded the clinical cut-off of 13 that suggests severe psychological distress (11%) compared to Sullivan and colleagues' (2019) sample. One possibility for the lower rates of distress observed in this sample compared to Sullivan and colleagues' (2019) data is that results were obtained at the beginning of the athletic season and academic year. While the timing of data collection was not specified by Sullivan et al., (2019), it is possible that this may be contributing to my sample reporting slightly lower rates of distress due to having fewer sporting and academic demands at this time. However, results from the current study are comparable to findings from a study conducted among university students in the United States where 50% of university students reported moderate and 15% reported severe levels of general distress on the K6 distress scale (ACHA, 2022), as athletes in my sample reported comparable rates of distress that exceeded the clinical cut-off (45% moderate and 11% severe). These findings suggest that

distress impacted student-athletes to a similar extent as university students in general, and this supports previous findings that student-athletes are widely impacted by mental health concerns (Castaldelli-Maia et al., 2019).

This study is the first to my knowledge to examine symptoms of PTSD among Canadian university student-athletes. I found that 38% of participants reported clinically significant symptoms of likely PTSD. This is higher than rates that were observed among a sample of university students (9%; Read et al., 2011). Indeed, there is increasing recognition that athletes are at increased risk for adverse mental health reactions following exposure to traumatic events (Kerr et al., 2019). Athletes are also frequently exposed to unique situations that can induce a trauma response (i.e., harassment, performance failure, starting status changing; Aron et al., 2019; Kerr et al., 2019), and injury, which can activate a trauma response in itself (Putukian, 2016). The potential for athletes to be exposed to traumatic events (e.g., injury, harassment; Kerr et al., 2019; Putukian, 2016) combined with the tendencies that athletes often rely on when they are faced with emotional challenges including minimization of their problems, avoidance (i.e., further investing in sport training, alcohol or substance use) and avoidance of help-seeking (Lebrun et al., 2018), that can promote the development of PTSD symptoms (Thompson & Waltz, 2008), may account for the relatively high rates of PTSD symptoms observed in the current sample of student-athletes. Elevated levels of mental health symptoms observed among this sample of student-athletes may be related to an interaction between athletes' sporting and academic demands that put student-athletes at increased risk for the development of mental health problems. In addition to previously mentioned stressors that student-athletes face (e.g., financial and performance pressures, frequent exposure to failure, susceptibility to injury; Wolanin et al., 2015), athletes have demonstrated high rates of qualities that are associated with

mental health symptoms including fear of failure, shame, self-criticism, and high distress (Ferguson et al., 2021; Wolanin et al., 2013). Though I did not examine these characteristics directly, it is possible that these qualities, that are common and potentially even encouraged among athletes, may contribute to the development of mental health problems among this population.

### **Mental Health Literacy**

Mental health literacy had significant correlations with small effect sizes to current anxiety and having a previous mental health diagnosis. Mental health literacy was not significantly correlated to any other mental health variables or past mental health help-seeking. This was somewhat consistent with previous findings (Jorm, 2012, Chang et al., 2018). Indeed, it makes sense that athletes who had received a previous mental health diagnosis would report higher rates of mental health literacy, which encompasses knowledge of symptoms of common mental health problems, the ability to recognize mental health problems, prevent mental health problems from developing, and seek appropriate mental health support (Jorm, 1997). However, mental health literacy was not significantly related to past mental health help-seeking. This was inconsistent with literature regarding mental health literacy, that has demonstrated a positive relationship with help-seeking behaviour (Beatie et al., 2016). As previously mentioned, this positive association with help-seeking behaviours may be related to mental health literacy's negative relationship with mental health stigma (Beatie et al., 2016). I did not examine mental health stigma directly, and this would be an important variable to include in future research, particularly among athletes, as stigma has been identified as a major barrier to mental health help-seeking (Reardon et al., 2019). In this sample, the majority of participants sought help for their mental health from their family doctor, rather than a psychology professional, which may

reflect athletes' difficulties accurately recognizing their mental health problems and instead attributing them to stress or academic or performance difficulties. Similarly, other researchers have found that inaccurately attributing mental health problems to environmental factors or life stressors was positively related to utilizing non-evidence-based treatment strategies (e.g., self-help) over professional psychological help (Coles & Coleman, 2010). Another possibility is that while athletes themselves may have adequate mental health literacy in order to recognize mental health problems, they may lack resources and face systemic barriers within sport that prevent them from receiving evidence-based support for their mental health problems when they arise, as other researchers have suggested (Henriksen et al., 2020). The tendency for athletes to refrain from seeking psychological support for their mental health may be related to additional barriers that are inherent in sport involvement that undermine help-seeking compared to university students, generally, such as lack of time, financial barriers, and stigma (Bird et al., 2018).

### **COVID-19 Impact**

Only participants' symptoms of disordered eating significantly increased between T1 and T3 and the size of this effect was moderate. This increase in disordered eating symptoms is consistent with findings that have been observed in the general adult population during the COVID-19 pandemic, as was described in Gao and colleagues (2022) systematic review. As previously stated, baseline symptoms of disordered eating were heightened in the current sample (9% exceeding the clinical cutoff) and others (Reardon et al., 2019) compared to the general population and researchers have posited that athletes are exposed to general and sport specific risk factors for the development of eating disorders. The increase in disordered eating symptoms observed in the current study between T1 and T3 may be due to increased risk factors for the deterioration of disordered eating symptoms related to the pandemic restrictions including social

isolation, disruption to regular routines and lifestyle practices, and limited access to support networks and services, including health and mental health care providers (Gao et al., 2022). In the open-ended responses, a small number of athletes described changes related to their eating behaviours amidst the pandemic due to their regular routine being disrupted (i.e., not eating as regularly, “stress eating” or eating more due to boredom), increased body preoccupation, and difficulty justifying eating due to the decreased physical requirements because of the pandemic. For instance, participant 58 noted “I eat less in that I usually skip breakfast now.” However, a number of other participants reported that their eating behaviours had improved due to having more time to prepare healthy meals and eating out less compared to pre-COVID-19. A more comprehensive assessment of disordered eating symptoms among competitive athletes is warranted (Reardon et al., 2019) as disordered eating behaviours and symptoms are likely underreported (Kerr et al., 2019), variable and difficult to detect (e.g., depending on the phase of competition, symptoms may not persist long enough to meet diagnostic criteria or be detected with a single-timepoint self-report questionnaire; Reardon et al., 2019), and normalized, minimized, or even encouraged at times in competitive sport (Van Slingerland et al., 2019). Certainly, eating disorder symptoms need to be considered in the high-performance sport context to determine the degree of clinical severity and impairment on the individual (Van Slingerland et al., 2019).

I found no change in any additional mental health symptoms across timepoints, although this finding needs to be tempered by the fact that the small T3 sample resulted in limited statistical power to find statistically significant differences. This finding was contrary to my initial hypotheses and other studies conducted among university students that have found mental health symptoms have worsened during the pandemic among university students, including

student athletes (Grubic et al., 2021; NCHA, 2020). A possible explanation for the lack of statistical change in mental health symptoms may be related to variable reactions to the COVID-19 pandemic that participants in the current study reported. Indeed, quantitative and qualitative findings suggest that while a number of participants reported increases in depressive and anxiety symptoms, a significant number of participants also reported improvements in their mental health due to decreased sporting responsibilities, reduced time pressure, rest, and increased time to invest in other important aspects of their identities (e.g., family, health, self-care). This may be especially true for individuals who had heightened levels of mental health symptoms prior to the pandemic, such as athletes. A slight improvement in mental health symptoms related to COVID-19 was observed in other studies where participants who had a pre-existing mental health condition prior to the pandemic showed improvements in their mental health symptoms during the pandemic (Sun et al., 2023). Overall, these authors concluded that while many individuals experienced distress related to the pandemic, most people showed resilience and made the most out of a difficult situation which contributed to minimal statistically significant changes in mental health symptoms (Sun et al., 2023), which is similar to themes that were generated in the open-ended questions in the current study (i.e., flexibility and resilience, shifting priorities, taking time to rest). Further, one study conducted among university students in the United States found that student-athletes' levels of stress and anxiety were much more stable compared to non-athletes during the onset of the pandemic (Strauser et al., 2023). These authors cited athletes' experiences with managing transitions, adapting to change, and maintaining high levels of physical activity as potential protective factors for mental health related to the pandemic (Strauser et al., 2023). Other researchers have highlighted the unique coping strategies that athletes employ to protect their mental health and promote flourishing throughout their sport

involvement (Pankow et al., 2021), and similar themes were observed in the current study (e.g., optimizing breaks from sport, connecting with social supports, and looking for the positives). However, it is important to note that despite the relative stability of mental health symptoms following the onset of the COVID-19 pandemic observed in a small number of studies conducted among athletes, student-athletes' levels of mental health symptoms still remain problematic and warrant further attention. Additionally, my results are consistent with Strauser and colleagues' (2023) findings that women, including women student-athletes', reported higher levels of anxiety compared to males during the COVID-19 pandemic. Results support the existing literature that overall, there were variable ways of responding to the pandemic and thus, it is important to gain individual perspectives about the impact of the pandemic on mental health.

One other study to my knowledge has examined rates of a range of mental health symptoms among Canadian student-athletes during the COVID-19 pandemic (Mountjoy et al., 2023). This study found that Canadian student-athletes reported heightened rates of depression (25.8%), anxiety (29.5%), alcohol misuse (54.5%), and disordered eating (82.6%) at baseline, and that these rates of mental health symptoms did not significantly change over time (Mountjoy et al., 2023). The failure to observe a change in mental health symptoms post-COVID-19 may be related to the heightened rates of mental health symptoms that were observed at baseline among student-athlete samples (i.e., T1 in this sample and Mountjoy's 2023 sample). Indeed, participants in my sample reported heightened rates of mental health symptoms initially, prior to COVID-19, which allows for less potential to increase significantly and instead, mental health symptoms may have remained problematic, or possibly improved, with the onset of the pandemic. As previously stated, other studies found individuals with prior mental health

conditions experienced a slight improvement in their mental health symptoms during the pandemic (Sun et al., 2023).

My results are comparable to the results observed by Mountjoy et al. (2023), though a direct comparison cannot be made due to the use of different measures. I found slightly higher rates of depression and anxiety and lower rates of alcohol misuse and disordered eating compared to Mountjoy and colleagues' (2023) sample. The difference in disordered eating may be related to the sample characteristics, as Mountjoy and colleagues' sample included relatively more leanness focused, endurance-based, and aesthetically judged sports (i.e., figure skating, swimming, wrestling, Nordic skiing, and cross country), which have shown increased rates of disordered eating (Reardon et al., 2019), or may be related to the measure that was used to assess this construct (Mountjoy et al., 2023). The higher rates of alcohol and substance use observed in their sample may be related to the timing of their data collection relative to the COVID-19 pandemic, as their results were obtained well into the pandemic (October 2020, January 2021, and April 2021; Mountjoy et al., 2023), while mine were obtained very early in the pandemic (May 2020). As previously stated, the failure to observe a significant difference in mental health symptoms may also be related to my relatively small sample size obtained in at T3.

### **Data Integration**

Qualitative findings help to contextualize the quantitative results. When asked about the impact of COVID-19 on their mental health, nearly all ( $n = 24$ , 86%) participants reported an increase in anxiety or sadness (i.e., disappointment, loneliness) in the open-ended questions, though this did not bear out in the quantitative data (i.e., no significant increase in PROMIS Anxiety or Depression). Participants reported increased feelings of general anxiety and worry about a range of topics that have been observed among university students in general (i.e.,

general uncertainty, family and loved ones, and contracting COVID-19; Cao et al., 2020; Zhang et al., 2020), as well as worries that were unique to athletes (e.g., uncertainty about the future of their academic and sporting careers). However, they also reported many benefits for their mental health related to the pandemic and described numerous ways that they were coping with the disappointment and constant changes. I also found no change in substance or alcohol use across time points, which is consistent with participants qualitative responses where the vast majority of participants reported no change in their substance use. One possible explanation for the lack of significant relationship between mental health symptoms and the COVID-19 pandemic could be that athletes may have benefitted from this initial break. Indeed, other studies have cited the demanding schedules, pressure to perform at all costs, and difficulty prioritizing other values as significant sources of stress for athletes (Castaldelli-Maia et al., 2019; Henriksen et al., 2020).

Despite citing increased anxiety and worry regarding the pandemic, across participants' responses, student-athletes described numerous benefits to having a slow-paced and open schedule due to the pandemic. Indeed, the increased free time prompted participants to engage in self-reflection about their current lifestyles and their futures and consider how they could invest their time and energy in ways that supported their well-being. Many participants described using the break in sporting demands to actively engage in healthful activities that were important to them, beyond their sporting commitments, such as personal hobbies and interests, time with family and friends, physical activity and time outdoors, mental health practices (e.g., meditation, mindfulness, online coping resources), and to simply slow down and rest. Indeed, other researchers have described similar coping strategies (e.g., considering positives of a situation and optimizing breaks from sport) as contributing to flourishing mental health among student-athletes (Pankow et al., 2021). Participants in my study also described having expanded their

perspectives about the pandemic and life in general which contributed to them coping effectively with the changes (e.g., not taking the small things for granted, allowing themselves time to rest). Participants' responses alluded to the idea that they may not have experienced these benefits if they had continued on the trajectory that they were on prior to the pandemic. The demands placed on student-athletes in terms of scheduling and pressure to perform are not conducive to sustainable, positive mental health, nor do they allow athletes adequate time and skills to support their emotional or often physical recovery (Henriksen et al., 2020). Athletes likely benefitted from the opportunities to engage in activities that supported their overall health during the pandemic. For instance, across different domains, many participants noted improvements in areas of health behaviour (e.g., diet, sleep, substance use) and mental health due to increased flexibility that their previous sporting demands would not allow for.

Considering that this data was obtained very early in the pandemic (May 2020), it is possible that athletes may have initially enjoyed aspects of having time away from their sport and intense training and academic schedules. However, it is possible that their mental health symptoms may have changed throughout the course of the pandemic with increased isolation and time away from their sport, which is a valuable and beneficial outlet for athletes. Further, while all participants noted some benefits in their mental health related to the COVID-19 pandemic, there were a number of participants whose mental health symptoms increased during the pandemic. However, some participants reported that they had time to adapt to and accept the pandemic restrictions by the time the data was collected and were no longer feeling the same degree of distress as they had during the initial implementation of the COVID-19 restrictions. Overall, these findings suggest that the impact of major life transitions are likely nuanced and understanding the impact of these events on athletes' mental health would be best understood

using multiple methods of data collection (e.g., validated screening measures, in-depth interviews, observation) in order to gain the most accurate understanding of how athletes are affected and coping and what their needs may be to manage these changes (Henriksen et al., 2020). It would be important to gain a further understanding of the factors that increase student-athletes' susceptibility to mental health decline during significant disruptions or transitions related to their sport involvement, in order to ensure those individuals can be adequately supported.

### **Implications**

Findings from the current study highlight the scope of mental health problems among student-athletes and point to the importance of increasing the prompt detection of mental health problems and referral to appropriate supports for this population. There has been increasing interest and emphasis on changing the approaches to addressing mental health in sport in recent years (Henriksen et al., 2020). Overall, mental health in sport is currently poorly understood and work is needed to clearly define and implement best practices to address mental health in this unique context (Henriksen et al., 2020). Results from this study indicated the presence of numerous mental health symptoms among athletes in this sample, that were comparable or slightly higher than those observed in the general population. As such, efforts should be made to increase mental health awareness and literacy in sport contexts broadly such that all professionals working in sport can be better equipped to manage their athletes' mental health (Henriksen et al., 2020). Both athletes and coaches should be provided with information regarding a broad range of mental health symptoms and mental health management strategies, beyond general stress management and sport performance enhancement (Bird et al., 2018, Casteldelli-Maia et al., 2019; Reardon et al., 2019). Further, efforts need to be made in sport that

consider mental health as a part of high performance sport culture, rather than a hindrance or crisis to be responded to when necessary (Henriksen et al., 2020). More research is needed regarding ways that mental health supports can be integrated into sporting contexts and how to continue to address stigma surrounding mental health in sport.

Current recommendations suggest that regular symptom monitoring and screening for mental health symptoms among student-athletes become standard practice for post-secondary institutions (Tomalski, 2019) as this would increase the ability to detect and support mental health problems and make appropriate referrals (Henriksen et al., 2020; Sebbens et al., 2016) and encourage transparency about mental health, which may reduce overall stigma surrounding mental health that is prominent in sport (Tomalski et al., 2019). This is significant as stigma remains the main barrier to mental health support seeking for athletes (Castaldelli-Maia et al., 2019). Based on the results from the current study, I recommend that screening involve an assessment of a broad range of mental health problems, beyond anxiety, depression, and general distress, and assess for the presence of trauma, which was prominent in my sample. Symptoms of disordered eating and substance and alcohol use may require further investigation, as these symptoms have been prominent in other athletic samples (e.g., Mountjoy et al., 2023), despite being relatively comparable to the general population in the current study. Monitoring should occur throughout the athletic season and account for factors known to increase athletes' susceptibility to mental health decline including injury, starting status, scholarship status, and major disruptions to their sport involvement (Henriksen et al., 2020; Putukian, 2016; Sullivan et al., 2019). Initial screening may take place in the form of a questionnaire that can be administered online, similar to what was used in this sample or utilizing other brief screening measures that are helpful in identifying at-risk individuals (e.g., Diagnostic Assessment Research

Tool (DART) Screener; McCabe et al., 2017). However, it is integral that data be interpreted by a professional who is trained in assessment and treatment of mental health problems and who can follow-up with athletes who are identified to be at risk, to ensure accurate diagnosis and that appropriate treatment recommendations are made.

While incorporating screening to monitor mental health may be an important step towards preventing and addressing mental health in sport, findings from this study support existing recommendations that broad, systemic changes need to occur to more fully understand and clearly define mental health in a sport context (Henriksen et al., 2020). For instance, utilizing measures to assess mental health symptoms (e.g., depression) provide helpful but limited information regarding mental health. Results from this study and others support the notion that mental health is nuanced, individualized, and context dependent and is not merely the absence of mental illness (Henriksen et al., 2020). As Henriksen and colleagues (2020) have suggested, mental health in sport requires greater clarity and understanding. Conceptualization of mental health in sport should be understood beyond the absence of mental illness or impaired functioning, assessed using multiple modalities (e.g., validated instruments, clinical interviewing, case conceptualization, and observation), and consider the individual's context (Henriksen et al., 2020).

The presence of mental health symptoms that were observed in this sample warrants the implementation of psychological supports for student-athletes. In the context of a low stigma sport climate that supports mental health, athletes are likely to benefit from increased access to evidence-based psychological treatment (e.g., cognitive behavioural therapy, trauma-focused treatment) to target underlying mental health symptoms. Researchers have integrated evidence-based psychological treatments in sporting contexts and found that these interventions improved

athletes' mental health symptoms and sport-specific coping abilities (Fogca, 2019). As previously mentioned, prompt access to a psychology professional (i.e., a psychologist), with training in evidence-based assessment and treatment of a range of mental health problems would be beneficial to student-athletes. Employing a psychology team who are ultimately responsible for coordinating the mental health care of athletes may help to address this gap in mental health services in sport (Henriksen et al., 2020; Tomalski, 2019). Such individuals should also have background knowledge of the sport context, as this has been an important facilitator for help-seeking among athletes (Bird et al., 2018; Henriksen et al., 2020). The presence of such a qualified mental health professional with a sound understanding of both mental health conceptualization and the sport context, which can impact athletes' mental health presentations, would also likely enhance the ability to accurately identify, diagnose, and provide relevant recommendations for mental health problems among athletes (Henriksen et al., 2020; Reardon et al., 2019). Certainly, issues surrounding privacy and how to best approach this with athletes would be important, as many athletes have expressed concern about their sporting world having knowledge of their utilization of psychological services (Bird et al., 2018). More research is needed in order to determine the types of mental health supports that athletes desire to address these concerns, the most acceptable methods of service delivery, and potential barriers that student-athletes face to accessing appropriate psychological supports, such as stigma.

Finally, it is important to note that interventions aimed at supporting athletes' mental health are only effective if the environment and culture that they are embedded in supports athletes' mental health and well-being and considers mental health as an important aspect of elite performance (Henriksen et al., 2020). Psychological interventions will have limited effectiveness and acceptability if they occur in a context of high stigma and low mental health literacy among

the sport community at large. Change regarding mental health in sport needs to be coordinated among all aspects of the sport system and consideration and evaluation of the impact of the sporting environment on athletes' mental health should be made a top priority (Henriksen et al., 2020).

### **Strengths, Limitations, and Future Directions**

This study was among the first to my knowledge to provide an estimate of a broad range of mental health problems among Canadian university student-athletes that included typical measures of depression and anxiety, but also less commonly used measures of disordered eating, substance misuse, and PTSD. I also provided a direct comparison of participants' mental health post-COVID-19. Finally, this study was among the first to my knowledge to examine mental health literacy, a factor previously found to be related to positive mental health attitudes and help-seeking, among a sample of Canadian student-athletes and examine the relationship of this variable to mental health symptoms and past help-seeking. Though additive, results are limited to student-athletes from a central Canadian university, and the sample size was small for the T3 results. These findings could be extended by examining Canadian student-athletes broadly with the aim of having a more representative sample and include athletes of various ethnic and cultural backgrounds, gender identities, sexual orientations, and sport types. A large scale, longitudinal design would provide more specific information about potential vulnerable points in student-athletes' athletic seasons and academic years (e.g., preseason vs. competitive season, during injuries, exams, etc.). Additionally, future studies should continue to explore mental health symptoms with greater specificity in order to further understand the scope of mental health concerns that impact athletes (e.g., bipolar, generalized and social anxiety, panic disorder, personality disorders, attention deficit hyperactivity disorder) and whether these concerns are

isolated within or extend beyond their sport context (Reardon et al., 2019). Findings are limited by the use of self-report data, which may have inflated estimates of mental health symptoms and failed to capture important contextual information related to athletes' mental health experiences (Henriksen et al., 2020). Though the use of self-reported data that was presented in a private, online format may minimize response bias (Sue & Ritter, 2012), future studies may want to reduce these issues by conducting in-person psychodiagnostic interviews (e.g., CAPS-5; Cheng et al., 2021) and employing qualitative methods to gain a more nuanced assessment of the scope of mental health problems (Henriksen et al., 2020). Additionally, future research should examine the feasibility and acceptability of regularly monitoring mental health problems among athletes and the potential impact that this may have on their mental health symptoms and stigma surrounding mental health. Indeed, other researchers have recommended that this be a standard practice in conjunction with regular physical examinations that athletes undergo (Henriksen et al., 2020; Tomalski, 2019). Finally, more exploration is also warranted to further understand the contextual and systemic factors that influence athletes' mental health, barriers to accessing mental health supports, and acceptability of mental health supports from athletes' perspectives using both qualitative and quantitative methods (Henriksen et al., 2020). Using various methods (e.g., semistructured interviews, open-ended questions, self-report questionnaires) will allow professionals who work with athletes to capture nuance related to athletes' mental health that may not be apparent with the sole use of brief questionnaires or closed-ended questions and allow athletes to provide individualized recommendations.

## **Conclusion**

Results from the current study highlight the relevance of mental health symptoms among student-athletes and the importance of addressing mental health in sport, which has traditionally

been less of a focus. Results also explored the impact of the COVID-19 pandemic on student-athletes' mental health and indicated some unexpected benefits of the pandemic on their mental health. Overall, the current study adds to the growing body of literature surrounding competitive athletes' mental health and mental health literacy and underscores the importance of addressing these factors in sport. Certainly, a more holistic approach to athlete development and support is warranted (Henriksen et al., 2020) to allow athletes to optimize their performance and overall well-being.

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“It’s Easier for Me to Help Someone Else Than to Help Myself”: A Qualitative Examination of  
Student-Athletes’ Mental Health Experiences

**Chapter 3: Study 2**

Engagement in regular physical exercise and organized sport is associated with positive mental health in the general population, and these findings have extended to university students (Brown et al., 2022; Eather et al., 2023). Despite these benefits, there is a growing body of literature that has identified competitive athletes, including student-athletes, as being at increased risk for the development of mental health problems (Reardon et al., 2019, Rice et al., 2016). The impact of emotional challenges experienced by university students, including student-athletes, and their tendency to underutilize available supports, can be severe and far-reaching, having the potential to lead to impairment in academic performance, personal functioning, relationships, and physical health (Wolanin et al., 2015). Indeed, the impact of untreated mental health problems among student-athletes can extend beyond an athlete’s sport involvement and may contribute to reduced academic performance and overall well-being (Wolanin et al., 2016). Consideration of the unique context of competitive sport and the tendency for athletes and sport culture at large to internalize ideals associated with strength, emotional fortitude, and mental toughness (The Sport Ethic; Hughes & Coakley, 1990), dealing with mental problems in sport can pose many challenges for athletes. It is possible that these internalized expectations about what it means to be a *real* athlete may contribute to negative attitudes towards mental health support and low treatment seeking observed among athletes. Currently, little is known about the development and expression of mental health problems among athletes and the extent to which the sporting context influences athletes’ experiences of mental health problems. While there is a growing acknowledgement of the presence of mental health problems among athletes, few studies have

examined the concepts of mental health and mental health problems in sport from a qualitative perspective. A small number of qualitative studies (i.e., Lebrun et al., 2018, Moreland et al., 2018), provide preliminary evidence that athletes report distinct ways of understanding and attempting to manage mental health problems compared to what has been observed in the general population. Thus, further exploration of athletes' mental health experiences from a qualitative perspective can provide a nuanced and in-depth understanding of the precipitating and maintaining factors that contribute to mental health challenges and barriers and facilitators to mental health help-seeking among athletes. In light of the gaps in the current literature, the objectives of this study were to explore the mental health experiences of student-athletes and to gain further understanding of the impact of the sport environment on their mental health and help-seeking experiences. A secondary objective was to explore the impact of the COVID-19 pandemic on student-athletes' mental health and their ability to access supports.

### **Athlete Mental Health**

Some quantitative research supports previous findings that often, athletes' mental health symptoms can be difficult to identify or even masked by sport performance (Reardon et al., 2019). Other research has demonstrated that often athletes struggle to recognize mental health problems and when it is appropriate to seek mental health support, especially when their performance and functioning do not appear to be negatively impacted (Bird et al., 2018). These findings highlight that athletes may demonstrate signs and symptoms associated with clinically significant and subclinical levels of mental health problems, but they can be difficult to identify in this environment (Doherty et al., 2016; Lebrun et al., 2018; Reardon et al., 2019).

Understanding the disconnect between the development of mental health struggles and identification and support seeking among athletes from a qualitative perspective may help to

further understand the barriers to identifying mental health problems and accessing supports in the sport environment.

### **Qualitative Research Exploring Athletes' Mental Health Problems**

A small number of studies have qualitatively explored athletes' understanding of mental health problems and their ability to recognize these problems as they develop. In their qualitative study with eight male, former elite athletes, Doherty and colleagues (2016) found that the athletes' sporting culture impacted how they developed and understood their initial struggles with depression (i.e., a lack of mental skills). Expectations associated with athletes' sporting culture (e.g., needing to be mentally tough and not show signs of weakness) further undermined their attempts to manage their mental health problems (e.g., engaging heavily with training as an attempt to avoid their struggles and eventually going through the motions of their sport participation) and their ability to engage with recovery. Regarding their understanding of depressive symptoms, many athletes perceived their challenges as a weakness or lack of mental fortitude and reported "I just thought it was my own mental lack, I thought my mental game was just weak" (Doherty et al., 2016, p. 7). Other participants reported that they conceptualized their depressive symptoms as a weakness or a failure to be overcome and shared "My train of thought with depression was that I am a failure, I need to be strong, as an athlete, when you make a mistake, you have to bounce back, the races don't stop" (Doherty et al., 2016, p. 6). This propensity towards conceptualizing mental health problems as a personal weakness prevented athletes from engaging in recovery and seeking psychological help. Similarly, another study conducted among American university athletes who sought psychological help for a mental health problem demonstrated that student-athletes struggled to identify when their concern warranted help and felt that they should be able to manage their issues on their own (Bird et al.,

2018). Thus, athletes' unique context may impact their understanding and expression of mental health problems and their attempts to manage them.

The few qualitative research studies conducted among competitive athletes suggests that athletes may understand, express, and cope with mental health problems in distinct ways compared to the general population and that their sporting culture influences these factors. Currently, it is unclear how athletes' beliefs and feelings about their identity as an athlete and how characteristics unique to the sporting culture (i.e., The Sport Ethic and stigma) influence the way that athletes experience mental health problems, what they know about mental health, and whether this impacts their help-seeking and attempts to cope. An additional gap in this literature base includes focusing on athletes with a range of mental health problems, beyond depression. Student-athletes are a group of competitive athletes who may experience additional risk factors to developing mental health problems considering their sport and academic demands (Tomalski, 2019). However, there is a limited understanding of student-athletes' experiences of mental health problems from a qualitative perspective (Bird et al., 2018).

### **COVID-19 Impact**

Circumstances related to the COVID-19 pandemic have posed further difficulties for student-athletes, who must simultaneously manage academic and sport-related demands. Student-athletes encountered similar challenges as other university students during the pandemic, including coursework and examinations being moved to online platforms, employment and financial stress, and uncertainty surrounding their return to classes (von Keyserlingk et al., 2021). Additionally, student-athletes' training and competitive schedules were suspended prematurely, with many major competitions being suddenly cancelled (Mehrsefar et al., 2020). For many senior or graduating athletes, their final competitive opportunities may have been lost.

Given public health restrictions concerning social (physical) distancing, student-athletes had to try to train independently and may have had limited contact with their teammates, coaches, and health professionals (e.g., athletic and massage therapy; Mehrsefar et al., 2020; Shukla et al., 2023). This resulted in increased isolation and negatively impact their ability to engage in healthy behaviours (e.g., exercising, eating healthy, and practicing good sleep hygiene), and may increase their risk for developing or exacerbating problems with their mental health (e.g., substance use, anxiety, low mood; Shukla et al., 2023). Finally, the uncertainty surrounding student-athletes' futures in sport due to COVID-19 (e.g., How, or when they will return to sport and whether competition will resume) poses additional challenges to student-athletes' mental health. Considering the rise of these unique circumstances, and in preparation for managing possible future pandemics (Shariq et al., 2023), it is important to gain a sense of the impact of COVID-19 on student-athletes' mental health symptoms and their ability to access and utilize supports during this time.

### **Objectives**

Considering the gaps in the literature, the primary objective of this study was to qualitatively explore the impact of the sport environment on the development, understanding, experience, and attempts to manage mental health problems among student-athletes through in-depth semi-structured individual interviews. I aimed to answer the following research question: How do student-athletes experience mental health problems in a high-performance sport context and how do they manage these challenges? This objective was achieved by asking athletes to respond to questions surrounding their experiences of mental health problems, how they have managed such challenges, and how the sport context influenced their understanding and attempts to cope with these problems. A secondary objective of this study was to further contextualize and

understand the impact of COVID-19 on student-athletes' mental health and management strategies during the pandemic.

## **Method**

### **Research Design**

Based on the study objectives, a qualitative research design was employed utilizing semi-structured in-depth interviews and an interpretive description framework (Thorne et al., 1997). Qualitative methods are appropriate given the exploratory nature of the research question and will allow for a much-needed in-depth understanding of participants' experiences. To the best of my knowledge, limited research has examined the mental health of student-athletes from a qualitative perspective that draws on student-athletes' lived experiences, particularly among athletes who had not already sought psychological support for their challenges (Bird et al., 2018). Thus, taking a qualitative approach to the research design is an essential step to gain an in-depth, rich understanding of how student-athletes experience, understand, and manage mental health problems and how the unique sport context impacts these processes. Further, taking this approach will allow athletes to describe their unique experiences and inform recommendations that are based on athletes' experiential perspectives.

This research question was approached using an interpretive description framework. This approach draws from clinical knowledge frameworks that aim to address clinically relevant research questions in the health sciences using qualitative methodologies (Thorne et al., 2004). A primary objective of interpretive description is to qualitatively uncover information and meaning related to a discipline specific clinical phenomenon within the context of interest that can be applied to practical situations and inform clinical understanding (Thorne et al., 2004). As such,

the aim of interpretive description is to establish an accessible and coherent framework for understanding and addressing a clinical phenomenon of interest that acknowledges and makes meaningful sense of commonalities and idiosyncrasies (Thorne et al., 2004, p. 4). This approach aligns with my objectives due to the emphasis on practicality, knowledge mobilization, and usability through the interpretation of knowledge that aims to guide and inform thought and clinical practices related to mental health in sport. This approach allowed me to describe commonalities across my sample that may be applicable to the broad sport context while also recognizing areas of discrepancy and individual differences and acknowledging the infinite number of realities that exist (Thorne et al., 2004).

Interpretive description is consistent with an interpretive naturalistic orientation and acknowledges a constructed and contextual view of one's experience while still allowing for shared realities (Thorne et al., 1997). Philosophical underpinnings of interpretive description are consistent with those of naturalistic inquiry outlined by Lincoln and Guba (1985) who developed seminal works on naturalistic methodology. Thus, underlying philosophical tenets of interpretive description include i) multiple realities exist that must be considered holistically in order to be understood and therefore are constructed, contextual and subjective, ii) the interaction between the inquirer and the "object" of inquiry is dynamic and bidirectional, and iii) no a priori theory could ever encompass the multiple realities that one will find in the data and so theory must emerge grounded in and from the data (Lincoln & Guba, 1985 as cited in Thorne et al., 2004). Thus, a benefit of interpretive description is that it can highlight commonalities and themes across the data, while still allowing for idiosyncrasies and variation between individuals, and it acknowledges the importance of context when exploring and attempting to understand human experiences (Thorne et al., 2004).

According to this framework, it is central to inform one's inquiry with past knowledge (empirical or clinical) about a clinical phenomenon to provide a foundation to make logical decisions pertaining to the design, analysis, and interpretation of the data (Thorne, 1997). In line with this approach, the research team included a doctoral student in clinical psychology whose research and clinical practice have involved extensive work in sport (see reflexivity statement in the *Rigor* section) who is also a former competitive athlete, a clinical psychologist, and an undergraduate student in psychology. Moreover, a thorough literature search and engagement with key stakeholders (i.e., student athlete athletic director, clinical psychologist working in sport, and the director of student services) were undertaken prior to developing this study design to determine the current state of knowledge and needs around student-athlete mental health.

### **Procedure**

Purposive sampling was used in this study, based on recommendations by Thorne and colleagues (2004) that emphasized the importance of gaining understanding from participants with direct experience with the phenomena of interest and who are directly impacted by the research questions. Thus, we recruited participants with a broad range of mental health experiences who reported a clinically significant level of mental distress. Participants were sampled from a central Canadian university athletic program with approximately 375 athletes during the 2019-2020 competitive season. Upon receiving institutional ethical approval, participants were recruited from a larger sample of 140 student-athletes who previously completed a survey about their mental health. Given the focus on mental health, it was important that participants have some experience with mental distress during their involvement in sport. Participants who scored above the clinical cut off for probable mental illness (scores 12-24; Kessler et al., 2010) on the Kessler 6-item Distress Scale (Kessler et al., 2002) and had consented

to be contacted for future research studies were invited by the researcher to participate in this follow-up study. Participants who indicated their interest in participating in the study were sent a link to complete informed consent online followed by a brief background questionnaire.

Informed consent was reviewed again prior to commencing the interviews, and athletes again indicated their verbal consent to proceed. Interviews were conducted by video conference (Zoom professional), audio recorded, and transcribed verbatim. The total interview time ranged from 60 – 100 minutes. Participants were provided with a small honorarium (\$10 gift card for an online store) for their participation that was provided to them by email upon the completion of the interview.

### **Analysis**

I utilized an interpretive description analytical approach, which seeks to provide a rich, in-depth description of a phenomenon and seeks deeper meaning and explanation, beyond what was said (Thorne et al., 2004). Moreover, an aim of interpretive description is to uncover information and meaning that can be applied to practical situations (Thorne et al., 2004). This point is especially relevant in this context of competitive sport as it is important to inform the understanding of and ability to support mental health among athletes. In line with this approach, coding was completed within and across transcripts, and quotes were flagged throughout the analytic process and included in the final framework (Thorne et al., 2004). To support the goal of developing a coherent narrative from the inductive coding process that relates the codes and themes to one another, I documented analytic memos (i.e., data collection themes, questions, patterns), developed narrative themes for each participant upon completion of their interview and noted consistencies and idiosyncrasies from previous interviews, and constructed visual diagrams to increase engagement with the analytic process. Moreover, because data collection

and analysis occurred concurrently, the interview guide was modified throughout data collection to clarify, deepen, and expand the analytic framework. The research team also met after the completion of every two interviews to discuss the emergent framework (described below).

Data was collected until theoretical sufficiency was achieved, evident by a lack of new emergent themes with incoming interview data (Given, 2016). Theoretical sufficiency was assessed by comparing incoming data with extant data, and sampling for emergent areas that have not been fully explored in interviews (e.g., gender, sport type). Theoretical sufficiency in interpretive description can be achieved with a relatively small number of participants and emphasizes the applicability and in-depth understanding of participants' experiences, while still acknowledging that there will be an inevitable amount of variability in the population of interest (Thompson et al., 2021). In the current study, theoretical sufficiency was deemed to be achieved, and thus data collection was terminated, after conducting seven semi-structured interviews. At this point, new participants' accounts of mental health problems knowledge, experiences, and attempts to manage reflected an in-depth, nuanced understanding of participants' experiences and there were consistent and common themes across the data. Further, after seven interviews, data informed a coherent analytic framework that addressed commonalities across participants and accounted for variation in responses that could provide some initial recommendations for clinical practice (Thorne et al., 2004).

### ***Rigor***

Recommendations were followed to ensure analytic rigor (Thorne & Derbyshire, 2005; Tracy, 2010) and attention was paid to qualitative research reporting standards throughout the analytic process and in the development of the written report (Levitt et al., 2018). Self-reflexivity

involves reflective practices about one's biases, motivations, strengths and shortcomings and transparency about these factors and the research process (Levitt et al.,2018; Tracy, 2010). As the lead researcher, the data gathering and interpretation were shaped by my personal experiences and background. I acknowledge that I am a white, cis-gender female with a middle-class upbringing. I have been privileged to access post-secondary education and, as a result, I have a master's degree in Kinesiology and am currently a Ph. D. candidate in clinical psychology. While I am not currently a competitive athlete, I have a longstanding passion for sport given my involvement in competitive sport throughout my lifetime and interest in health broadly, which I was able to reflect on throughout the research process. My experience in clinical psychology and past work with athletes likely positively impacted the interview process by enhancing my ability to develop rapport and understanding with participants. I acknowledge that I have a personal interest in encouraging young adult's involvement in sport and improving access and support for mental health generally, and specifically in sport, which undoubtedly influenced my research trajectory and interpretation of the data.

I practiced self-reflexivity throughout the analytic process by engaging in regular self-reflection and practices that enhance transparency throughout the research process (i.e., maintaining an audit trail, writing initial narrative themes following interviews, and reflecting about convergent and divergent themes throughout the analysis). As an additional measure to ensure analytic rigor, the research team included multiple coders in the analysis- three coders (LC, CI, & KR), who independently analyzed the data and met together to discuss reflections and integrate findings into emergent themes and manage discrepancies in the coding process. I engaged in regular analytic discussions with the research team about how my potential biases and my previous experiences as a former athlete, clinician working in sport, and clinical

psychology trainee impacted my interactions with participants during the interview, being cautious not to lead participants to respond in a certain way, and my interpretation of the findings, being careful to accurately represent their experiences according to their accounts and responses (Tracy, 2010). Despite this awareness and these practices, the researchers' experiences and biases as psychology professionals/trainees and experience working with students and athletes undoubtedly influenced the development of the interview guide, how the interview process was conducted, and how the data was conceptualized.

Further processes were followed to ensure analytic rigor including staying open throughout data analysis to divergent themes and subthemes; challenging the analysis and emergent thematic development; testing relationships- challenging patterns and themes in the data, remaining open to changes, including discrepant views; and capitalizing on outliers- reflecting on what might be missing from the data (Levitt et al., 2018; Thorne & Derbyshire, 2005; Tracy, 2010). The interview guide and emergent framework were also shared with clinical psychologists who work with students and athletes who provided additional feedback about the relevance and applicability of the data. These practices allowed the researchers to maintain awareness about their own biases and opinions and the extent that these factors were impacting the emergent analytic framework. Moreover, a detailed audit trail was maintained throughout the analytic process in order to record decisions made and steps taken to arrive at the final interpretation of the data (Tracy, 2010).

## **Findings**

### **Participant Characteristics**

Participants were seven adult (M age = 22 years) members of a central Canadian university athletic program whose sports included soccer, track and field, and ice hockey and who primarily identified as female. Participants also varied in their city and country of origin (Provinces of Origin: Manitoba, British Columbia, Ontario and outside of Canada). Self-reported mental health presentations included undiagnosed depression, undiagnosed anxiety, and attention deficit hyperactivity disorder (ADHD).

### **Athletes' Experiences of Mental Health**

The overarching theme that underscored all of the participants' responses, "The Athlete Identity: The Tensions in Upholding Athlete Standards," describes the image of an athlete that participants had developed. This theme refers to the qualities and characteristics that represent the athlete image in terms of how participants perceived themselves and standards and expectations that participants expected themselves to uphold. Participants were acutely aware of these standards and spoke about this identity as being a constant point of reflection and reference when discussing their journey through sport and navigating the challenges that they have faced. This overarching theme consisted of four main themes that represent factors that athletes identified as contributing to their identity development, experiences that posed challenges to athletes' identities and how they navigated these challenges, athletes' difficulties associated with mental health problems, and reflections about how athletes saw their identities and their sport culture potentially changing moving forward as they relate to mental health. These four main themes included: "Shaping Identity"; "Disruptions to the Athlete Identity: Navigating the Complexities"; "The Struggles with Struggling: Making Sense of Mental Health"; and "Reconciling Mental Health and The Athlete Identity". The main themes and subthemes are presented in Figure 1. The impact of the COVID-19 pandemic is discussed across all of the main

themes, as athletes cited the pandemic as impacting all of these aspects of their athlete identity. A summary of quotes that reflect these themes and subthemes is presented in Table 1.

### **The Athlete Identity: The Tensions in Upholding Athlete Standards**

Within this central theme, participants described a set of qualities and standards that they had internalized and felt they should be able to uphold as an athlete. First and foremost, participants described their ability to achieve consistent and elite performance and to continue to strive for improvement as central to their identity as an athlete. Participants were highly sensitive to changes in their performance and described being recognized and reinforced for achieving optimal performance. They described a feeling of having “eyes on you” (participant 6), meaning that they felt a constant awareness about their ability to meet these standards, that they felt came from themselves and others. The emphasis on performance motivated athletes to push themselves to strive towards elite performance. Participant 3 elaborated on this concept when they stated:

I don't know, I guess I always wanted to be the person, you know, who is the example who finished the work out first. I want to be an example for everyone, so I always wanted to work the hardest in the workout, finish first, that kind of stuff. So, by having other people around, I guess it just it was that drive for me to finish. So even if I was in a lot of pain or whatever, finish the workout, because other people are there. They're looking at you. They're watching you.

Participants described how successfully meeting expectations was reinforced by others and fostered further intrinsic motivation to continue to push their own boundaries. They recognized that their ability to attain and maintain elite performance at the university level set

them apart from others, they took pride in these abilities, and this motivated them to continue with their sport. For instance, participant one noted that her ability to stick with her sport when many of her peers has discontinued had motivated her to continue:

... but seeing how mentally strong I am to be able to be put through all these situations and circumstances and how if I can do this, then why shouldn't I be able to continue it? So, it kind of pushes me to just continue and see how far I can go.

Although participants' ability to achieve elite performance, continue to strive for improvement, and receive recognition for their performance was often motivating, they acknowledged that they experienced significant distress when they were unable to meet these standards or when their performance was declining. Indeed, participants were highly attuned to changes in their performance. Participants alluded to putting pressure on themselves to constantly attain and improve upon performance standards, and they described struggling to celebrate or enjoy their successes. Any enjoyment about achieving performance standards was often short-lived and quickly replaced by the pressure to seek improvement and work towards the next goal or target. Participant four described this pressure: "And then when I hit a goal or a big number or something, it's less of "yay, I can't believe I hit it!" It's more of ugh finally. I should have hit that a long time ago. OK, what's next?" Across participants, there was a sense that if they *were* meeting their desired goals, then they were not doing enough previously, and should have reached these results sooner. Participant two elaborated on this in terms of struggling to appreciate and enjoy their accomplishments in the following quote:

So, if let's say you just [get] your personal best in [your sport]. Overall, great [performance], you think like, oh, sweet, like personal best, nice, you don't analyze it other than the fact that your [performance] is better, but you will analyze the fact that,

like, maybe you could have kicked a little earlier because you felt so good coming down the homestretch. Or maybe you could have made a move then and done this. And so, you think about all the wrong things you did instead of focusing on the right.

Being performance driven translated to other parts of athletes' lives, including their academic pursuits, and created pressure to always feel productive, as participant three described:

I guess I just want to be able to maximize whatever like the time I have, I don't want to waste it. I want to do something productive in my time, whether it's training to get better for whatever sport I'm doing, or if it's studying so I can have good grades. I just want to make the most of my time, basically. I just want to be as productive as possible. That's how I see it.

Participants described other personal qualities and characteristics that have been established or enhanced through their sport involvement that sets them apart as an athlete including competitiveness ("I'm a very competitive person, so I like to be able to compete at a high level" [participant 3]) making sacrifices for their sport, and being self-sufficient especially when managing challenges ("...I feel like in sports, you're always like expected, especially in hockey, to just toughen up" [participant 7]). In addition to being able to consistently achieve elite performance, athletes spoke about the importance of setting an example for others by modelling these characteristics, including when they encountered adversity. Indeed, athletes acknowledged that when they encountered challenges in their sport, they felt that it was important to show that they could handle it on their own and they were reluctant to let others see their struggles.

### **Shaping Identity**

Athletes described several factors and experiences that contributed to them internalizing the expectations and standards related to the athlete identity. This involved a recognition and understanding of these expectations and standards as well as information about their ability to meet these standards. The first main theme under the overarching theme was Shaping Identity and involved the ways that participants came to form and maintain their identity as an athlete. This theme was comprised of three sub-themes: Seeing potential, Sacrifice, and Sport as Home: “It’s All I’ve Known”. The process of developing and maintaining this athlete identity was dynamic and fluid and something that participants were constantly reflecting on. They discussed how this identity has continued to evolve throughout their sport journey.

### *Seeing Potential*

All participants cited the importance of experiences where others acknowledged their potential for high level sport. Participants also described recognition of the potential experiences that sport could afford them as being central to their motivation to pursue and continue with their sport. Almost all athletes described being interested in pursuing high level sport since their early teens. They discussed early experiences of others, like coaches, recognizing that they had potential to perform at an elite level. Across participants, there was a sense that aspiring towards future possibilities and growth in sport was a part of being an athlete, as participant six expressed: “As an athlete, you always have big dreams.” One participant described how she started to recognize her own potential to continue to grow in her sport from a young age:

It probably started in high school when I was kind of starting to look into being more serious with [my sport] and seeing how many girls my age group dropping out and seeing that I did have a potential to go play somewhere else. (Participant 1)

Being acknowledged for their potential strengthened participants' sense of identity as an athlete, because they recognized that their ability to achieve this potential was something that set them apart.

Participants discussed how continuing to notice and be noticed for making progress towards their aspirations maintained and strengthened their identity as an athlete as well as their motivation for their sport. For instance, participant three described how achieving her sporting goals motivated her:

I had a big year improvement wise. My personal best increased [significantly] in one year. So, I jumped pretty high up. I was able to make the traveling team. And just that motivation for myself, to see myself get better and to see what I can do, I think that's probably the biggest motivation for me.

Athletes valued this recognition and being considered a model that others could strive towards, and felt it was important to follow through and perform in a way that was consistent with what others have recognized in them.

Participants also described feeling motivated from early in their sporting career and throughout their involvement in sport about the potential that sport could hold for them, whether that was achieving further performance accomplishments (hitting the next goal), or sport serving as a stepping stone for something more in their lives (e.g., playing sport professionally or on a national team). They also saw opportunities for other areas of importance (e.g., having university paid for, volunteering, independence) that sport could provide for them.

Overall, athletes expressed gratitude for the experiences that they have had through sport by way of being recognized by others and achieving elite performance, but also described feeling

significant pressure to follow through and deliver in order to uphold these expectations. They alluded to a sense of knowing that others in their lives were aware of their potential as an athlete and they felt responsible to behave according to these standards. Participant six elaborated on the importance of this sense of recognition and pride that athletes felt from being known as student-athlete and emphasized the responsibility that this role encompassed for her: “So, I think that as an athlete, you have always that responsibility - all of the community is looking at you.”

### *Sacrifice*

The second subtheme, “Sacrifice”, represents participants’ commitment to their pursuit of sport, that has involved significant investment and sacrifice with the hopes of achieving their potential and gaining opportunities that they envisioned they would attain through sport. Many athletes described a long history of investing heavily in their sport and sacrificing in multiple areas of their life in hopes of reaping the potential benefits through sport that they had envisioned. Athletes’ long history of sacrificing for their sport was something that participants took pride in and felt was an important experience for building their character. Participant five described this appreciation for her investment in sport from a young age:

We would have to travel almost every weekend to go play, especially during the winter, because the fields here would be closed, right? And so basically what we would do is we get on a bus at Sunday morning at like 7:00 or so, and then we travel, play a game, come back at night. And I feel like that instilled a lot of independence within me. And I feel like that, especially from such a young age, I feel like that made me learn so much and I feel like that made me want to grow more and see what else is out there.

Participants described their investment into sport as being necessary to maintain their involvement in competitive sport and an expectation that they should be able to uphold to maintain their identity as an athlete. Participant four described how her understanding was that this ability to juggle numerous commitments and sacrifice in multiple areas of life was something that everyone could and should do:

I think it was just the expectation is understanding that this just needs to get done, like this is just how it is. You're going to be busy in school, if you want to get where you want to go, like no one said it was easy and this is what you're supposed to be doing. You're supposed to be able to work, go to school and volunteer like, people have done it before me, people do it after me.

Some participants noted that others in their life were also invested in their sacrifices and successes in sport, including family, coaches, and teammates. Similarly, athletes were aware of the sacrifices that others had made for them to continue to pursue sport. Participant three described this awareness:

I've been around sports, so I know the amount of work that goes into coaching and the amount of stuff that they sacrifice. So, for me, like if I don't show up to a practice that I told my coach I was going to, I just feel like I'm really letting them down and disappointing them. And then also same for my teammates, like they showed up - So why couldn't I? Kind of thing, and that's always an important thing [for me] to show up.

Participants also described a sense of pride in their sacrifices, in having made it this far in sport (to a university level) and having successfully attained these athletic standards for so long. Investment was something that participants reflected on as they thought about their next steps

with sport or possibly leaving sport, and that often made it challenging to think about changing their sport involvement, because they had already come this far. Athletes placed importance on seeing their participation through based on the sacrifices and investment that they had made. They wanted to be able to continue to make these sacrifices to uphold their sense of identity as an athlete. At times, this sense of pride interfered with their ability to acknowledge and seek help when they were struggling. While participants described the difficulty with the significant sacrifices that they have made, they noted the importance of recognition and results in terms of justifying the sacrifice and making it worth it.

### ***Sport as Home: "It's All I've Known"***

Regardless of how difficult their journey in sport had been thus far, participants described the sense of structure, routine, and security that sport provided for them in their day to day lives and for their sense of self as a whole. This subtheme represents this sense of familiarity and family that athletes found through their sport involvement and from their identity as an athlete. They spoke of people in their sporting world as being like family and sharing a sense of understanding that they could not achieve from other relationships in their lives. Participant five described how her team provided her with a sense of safety and security: "And that's another thing about the team, is that regardless of how close you are with someone, they are always there for you." For several athletes who were living away from family, this was especially important.

Participants also described feeling a sense of comfort when engaging in their sport training and competing and enjoying the structure that sport has demanded, despite the sacrifice that their involvement has required. They felt a sense of shared purpose with their teammates that enhanced their sense of belongingness. Indeed, their sport was a place of refuge and relief during times of struggle, as participant two described: "If anything, sport was like a relief for me. Sport

definitely was like an escape for me.” This sense of sport as home also created pressure for athletes to continue their involvement in sport, despite the importance of taking time away from sport at times due to injury or other priorities, or when they struggled to manage everything on their plates (a sense that if others can handle all of it, I should be able to as well and I want to).

For instance, participant three noted:

I don't know. I guess like because track is something that I've committed to, I put time and effort into and especially with a university career, you only have so many years. So, it's like sometimes it's hard to justify taking off, even though it's only like three months or something, it's like in the long run, well other people aren't taking off those three months.

The length of time that athletes have been involved in sport combined with the focus and sacrifice they have invested has made it challenging for athletes to imagine any other way of being or imagining their involvement in sport changing. The thought of leaving sport came with uncertainty and discomfort, and this was evident in the way that participants responded to questions about not being an athlete. For instance, when asked about whether they would feel differently if they weren't an athlete, participants responded in ways such as:

Being an athlete is all I've ever known... so I don't know, maybe, but I think yeah, I don't know how to answer that one I'm going to be honest, because I can't even imagine myself not being an athlete. So even putting myself in that perspective of how I would feel seems very strange. (Participant 7)

Another participant noted “If I wasn't athlete... If I wasn't an athlete? It's hard to say because I literally only remember my life doing sports” (Participant 2).

### **Navigating the Complexities of Disruptions to the Athlete Identity**

Participants' longstanding ambitions for sport, sacrifice, and the sense of security and comfort that their sporting world provided (Shaping Identity) contributed to them feeling that it was of utmost importance to maintain their athlete role and uphold the standards associated with this identity. However, athletes described a number of circumstances where they felt that they were unable to uphold these standards or fulfill the expectations associated with the athlete role to the same extent that they once could. This second main theme describes participants' experiences when they felt a sense of dissonance or disconnectedness from their athlete identity and how they navigated these experiences. This theme is comprised of three subthemes: Disruption Experiences; Urgency to Resolve Disruptions: Tunnel Vision; and Performance as the Problem and the Solution: Sport as Coping.

### *Disruption Experiences*

Given their investment in their sport journey, athletes felt an expectation to uphold consistent high performance and maintain the standards associated with the athlete identity. Experiences that made this difficult or prevented them from engaging in sport to the same extent created a sense of dissonance where athletes grappled with trying to confirm their sense of identity or possibly shift the importance away from sport and onto other priorities. The first subtheme encompasses the types of experiences that participants described that challenged their abilities to uphold athlete standards. These experiences included performance disruptions, pandemic disruptions, and injuries.

Performance disruptions, periods of performance decline or failure to meet previously attained performance standards, were the most frequently cited disruptions. Athletes emphasized the importance of upholding performance standards and a sense of constantly monitoring their performance, as this was central to maintaining their identity as an athlete. As previously

mentioned, performance was always top of mind for participants, and they were highly sensitive to performance declines and opportunities to improve performance. Failing to meet their performance expectations was associated with significant distress as described by participant two: “I was just constantly sore for a good month and a half. And constantly sad because you're not getting what you want out of it (performance). I tried different recovery. I tried everything and I wasn't getting what I wanted.” Indeed, there was a sense of “falling behind” (participant 1) when athletes started to notice that their performance may be declining, even subtly, that caused significant distress and worry. Participant four elaborated about the distress of not performing to their perceived standards and noted how their sense of self was highly tied to consistently modelling high achievement:

I've been in leadership roles in sports for many years, like I was a captain of most of my [my sport] teams, and I think that's like a personality trait that I have independent of sport. But I think it comes through a lot in sports and which might be another source of pressure that I feel, too, because I'm supposed to be the leader. Therefore, I'm supposed to be performing the best. Therefore, when I don't, it feels like I'm a fake, kind of.

One athlete noted that the transition to high caliber university sport felt like a disruption to her understanding of her abilities: “And that was that transition from going to being like a rock star in high school to now being the fourth liner grinder kind of person” (participant 7). Indeed, reaching a university level and not standing out as much as previously was difficult for some participants, who were often used to being the focus of other's attention and praise due to their strong sporting performance. When they struggled with their performance, it made it challenging to justify the investment and sacrifice that they had made up to this point. Even

when athletes had achieved their performance goals, they described constantly feeling uneasy about maintaining their place as a top performer.

Participants also felt a sense of disruption to their athlete identity when they experienced an injury. Having to reduce their sport involvement due to injury caused distress for participants and was difficult for them to accept. Injury could continue to disrupt their sense of self and expectations for themselves, even once they had recovered. Indeed, expectations of needing to attain consistent top performance created pressure for athletes to uphold these standards, even when they were injured. One participant noted how the importance of maintaining her athlete identity, and many of the qualities that contribute to this identity (e.g., achieving consistent high performance, showing persistence in the face of adversity), motivated her to recover as quickly as she could but also made her feel compelled to push herself beyond what was recommended or needed: “If you can push yourself and, you know, if the physiotherapist or the doctor said you have to do two sessions per day, let's say, but if you know that you can do three, why don't you do three? You can do it right?” (Participant 6). This made it challenging for athletes to give themselves grace to recover from injuries.

The pandemic was a different type of disruption to the sense of routine and security that athletes felt in their sport. Participants cited the social isolation from their sporting community as being distressing. Additionally, many athletes noted that this was the first time that they were not bound by the intense requirements of their sport, which created a sense of anxiety and restlessness that impacted athletes' health and well-being. This new sense of freedom was disorienting for athletes as they had increased free time and decreased sport-related demands. Others cited feeling like there was “no escape” (participant 2) from different aspects of their life, while previously, sport was a helpful outlet to decompress from other aspects of their lives, and

vice versa. Similarly, participant five elaborated: “I mean, like with covid and just like being online and just like being isolated, it's just hard because you're not having that break from school, especially like in lockdown, it's like you go downstairs, make breakfast, go upstairs, eat, do homework and that's it. You can't go anywhere.”.

Participants noted that the break from competition that athletes valued so strongly, and uncertainty about how long it would last, was challenging as they were no longer able to justify their previous sport-related sacrifices, as described by participant two:

This year's definitely been one of the harder ones with the pandemic and lack of competition, because usually what motivates me is competing like I want to compete, I want to go out there and show myself that all the training that I've been doing has been working, especially this year, since I switched coaches. It's something that I just want to prove to myself that I was the right decision for me.

For many participants, this change in routine prompted a shift in their priorities away from sport, to focus more on academics and starting to imagine life beyond sport, especially once competitions were cancelled. Participant three explained that she found it difficult to accept this shift in priorities, as it felt unfamiliar and in conflict with her sense of self as an athlete:

I got a new job, so I wasn't really able to do much [of my sport], so I didn't do any training over the summer, really. So, I was like, hard for me to accept, I guess, like. Very rarely have I ever put a job above sports, so it was kind of hard for me to say OK, well, I'm going to put this first priority and then put [my sport] on the back burner, but then it was like I don't know, I guess the way I rationalized it was or I came to terms rationalizing it was that you know, there's no there's probably going to be no competition

in the fall, so like you putting off your training for three months might not be the worst thing right now if you can work more. But that was definitely hard for me to accept.

Though the pandemic was challenging, several participants cited their sport experience as a source of resilience and strength for getting through the pandemic. They described numerous ways that they adapted to the pandemic restrictions and were able to reconcile this disruption to their routine (to some extent) to maintain their sense of identity as an athlete, including using strategies that they learned through sport to manage stress, keep perspective, and adapt their training routines.

### ***Urgency to Resolve Disruptions: Tunnel Vision***

Given the importance that athletes placed on upholding their sense of identity as an athlete, their familiarity and routine around their sport involvement, and the distress associated with challenges to meeting these standards, participants described a sense of urgency and internal pressure to resolve disruptions to their athlete identity. This second subtheme reflects participants' sense of urgency and intense focus to resolve disruptions to their performance and identity. Athletes devoted significant time and energy to resolve disruptions and showed a tendency to fixate on mistakes or inadequacies as an attempt to solve or prevent disruptions. Disruptions motivated athletes to engage in numerous strategies to resolve their performance difficulties. Participant two described this sense of urgency and hyperfocus:

I definitely wasn't looking for "oh, well, I had a really good first half of the workout," I was definitely looking at it like, "oh, I really had a bad second half of the workout." And then you think, well, maybe it's my diet so you try eating new things before practices and sometimes that doesn't work. And then you try recovery, and you try different stretch

routines and sometimes you get hurt because of the stretch routines. It's like an endless cycle of trying and like you fight back and forth with your body. So, the fact that you're not getting it right always just ticks you off.

Participants showed some insight into the long-term negative consequences of this approach but struggled to break out of this cycle. Participants also described how this hyperfocus and urgency ironically contributed to them performing below what they were capable of. However, despite recognizing the negative impact of this hyperfocus on performance participants struggled not to worry when their performance did not or *might* not unfold as they expected.

### ***Performance as the Problem and the Solution: Sport as Coping***

All participants described an initial tendency to attribute their emotional distress to their sport performance during times of disruption. Participants felt that the root of their emotional challenges was their inability to meet performance expectations and they needed to achieve their performance goals to feel better. Because of attributing their emotional difficulties to performance (decline), many participants indicated that at the outset of their emotional struggles, they felt that they “just needed to get better results” (participant 4) to resolve their emotional distress. This prompted athletes to invest further in their sport. The tendency to rely on their sport engagement as the solution to emotional distress was a part of the expectations associated with the athlete identity. Many athletes described an expectation that if they were struggling emotionally and their performance was suffering, that they just needed to “level up” (participant 7) or toughen up, and if everyone else was meeting these standards, then they should be able to as well. This sense of tunnel vision, or tendency to fixate on performance, made it challenging for athletes to consider other factors that may be contributing to their emotional distress (e.g., mental health challenges). Participant seven shared:

Yeah, it affected my performance for sure. Just because I feel like I didn't really think it was my mental health, that being that low (emotionally) was a barrier. I thought it was just like, oh, I just need better results. I just need to be better, just need to be better. Like, I'm just not trying hard enough, that's it. But I really didn't really think I'd be like, no, you've got to fix this (my mental health) first.

Athletes noted a history of using their sport as a way of coping with emotional stress in the past and the benefits of this strategy at times. However, they also described drawbacks of relying too heavily on their sport to cope with emotional challenges, especially when sport itself was a source of mental distress. Participant two described this process:

I was always down and looking for, like, anything to take my mind off of [my sport]. And [my sport] is like a pretty big part of my life... I have like a bulletin board like right here that just has like all of the [competition apparel]. So, like [my sport] is all around me essentially, so it's kind of hard to, like, escape it. So, I would always like to sit in like our basement, and I would just like stare at the TV just like, OK, like something that isn't [my sport], please. So, I definitely-- because this is where I do my school work, so I definitely pushed my schoolwork aside because of [the reminders of my sport]. And so now I'm paying for it now and the midterm season and project season, so it's a little tough.

### **The Struggles with Struggling: Making Sense of Mental Health Problems**

Mental health challenges represented a unique disruption to the athlete identity, and participants spoke about the difficulty that mental health challenges posed for them in terms of integrating these experiences into their identities as an athlete. As previously described, emotional challenges were initially attributed to performance declines that could be addressed by

improving their performance or increasing their sport involvement. Mental health challenges sometimes precipitated disruptions to performance or were exacerbated due to disruptions. This third main theme describes athletes' experiences with mental health problems in terms of how they recognized and understood their difficulties and the factors that made this challenging, and their attempts to cope with emotional difficulties. This third main theme consists of two subthemes: Sport Messaging: Mental Health Information Missing; and Minimizing Mental Health Problems: Hiding.

### ***Sport Messaging: Missing Mental Health Information***

Participants expressed that the general messaging surrounding mental health in sport was limited. They described struggling with the concept that although showing perseverance in the face of adversity was a part of the expectations of being an athlete, actual experiences of athletes struggling were not depicted or discussed in their environments. As one athlete described, "Whenever we're talking about illness, it's always about, you know, a muscle issue or something, you know, like a musculoskeletal issue. Not so much mentally" (Participant 3). Athletes noted that the purpose or benefits of addressing mental health concerns were generally unclear, which made them feel like it wasn't necessary to address their mental health concerns. One athlete noted, "I think there's a bit more of like don't talk about it because it doesn't really affect your gameplay at the end of the day, kind of thing. Like, depression doesn't really affect the way you play so why would you talk about it?" (Participant 7). Another athlete indicated that much of the information about mental health that is presented in sport fails to represent a broad spectrum of mental health experiences. She stated:

I think that's a key thing that you just said right there is the whole fitting in aspect because like with me, it's like I know my mental health is not general (stress

management), but I know it's not like an extreme, extreme, extreme case because I'm not self-harming to that extent.... I feel like if I'm not at the extreme, extreme case, there's no point in talking about it, almost because I feel like you only really talk about it once you are extreme. (Participant 5)

Indeed, because of limited information about and minimization of mental health information, the range of mental health problems that athletes may experience is unclear. As a result, participants struggled to see their own struggles as a part of their identity and understand them as a mental health problem as opposed to general stress or a performance-related concern. Instead, many participants thought that their emotional challenges were due to personal inadequacies or character flaws due to their inability to meet athlete standards and expectations. Generally, athletes felt that the expectation was that they should be able to manage any emotional difficulties on their own, unless they were extreme (e.g., self-harming). This sense of missing information about mental health was even present in terms of available help and resources for mental health. For most participants, they did not have a team psychologist or mental health support. Participants noted that they were unsure about where to go, who to ask for help, and when it was appropriate to seek help, and that they simply did not have the time to navigate external options to seek additional support. On the other hand, there were a few participants who noted the benefit of having a psychology consultant present in the sport environment and how this contributed to them eventually seeking help:

Because I remember the way I decided to talk with the psychologist was because I saw him [at practice] all the time. So, he became more familiar to me. And then after a while I was like, OK, this guy is there all the time for something. I should talk with him. (Participant 6)

Overall, participants described feeling guilty and uncomfortable about identifying with their emotional struggles and potentially opening up about them. For many athletes, this was a longstanding pattern and connected to the qualities that they valued that were associated with their athlete identity, as participant seven described: “I’m more of an independent person when it comes to my feelings and emotions. I don’t know, I’ve always been that way.” Interestingly, many participants described feeling comfortable seeking a psychology professional for a performance related issue (e.g., performance anxiety) but did not want to seek formal psychology support for their mental health struggles, as participant four described: “I just assumed that they were there for sport related mental health things.”

### ***Hiding and Minimizing Mental Health Problems***

Due to the general lack of information and messaging surrounding mental health in sport, experiencing a mental health problem did not seem to fit with the athletic formula for success based on participants’ internalized expectations of the athlete role. This made it challenging for them to identify and recognize mental health problems when they occurred and to cope in helpful ways. Athletes described both a sense of perceived public stigma, the fear that others will perceive them negatively for experiencing a mental health problem, and personal stigma, the belief that one is inadequate for being a part of a stigmatized group (Corrigan, 2004). As a result of this stigma that athletes felt, many athletes described feeling like they needed to hide their emotional struggles. There was an overall tendency to minimize their difficulties, both in the ways that they tried to manage their challenges and in the ways that they spoke about their challenges during the interview. For instance, when asked about their experience of struggling with their mental health, participant two replied “I wouldn’t say it was like a full-blown depression, if that’s what you’re asking.” This reluctance to acknowledge the extent of their

mental health problems was evident across participant's responses. Participants initially described minimizing their mental health struggles, as depicted by participant five, "I didn't really think it was that big of an issue." Several participants noted that they did not want to be perceived differently by their sporting family and thus refrained from discussing mental health concerns with them, as participant one expressed: "And I don't like showing people that I break down because I don't know. I guess I always think it made me feel weak." As a result, many athletes often waited a very long time before seeking any additional support and instead opted to deal with their mental health challenges on their own, which they felt was acceptable and expected as an athlete. Indeed, athletes reported that struggling with their mental health and needing support was hard to come to terms with given their history as a successful athlete and the value that they placed on their athlete identity.

### **Reconciling the Athlete Identity and Mental Health**

The final main theme represents the strategies that athletes used to come to terms with their mental health difficulties and where they currently stand in terms of their thoughts and feelings about mental health and sport. This theme builds on previous themes by illustrating how athletes integrated and reconciled identity disruption experiences involving mental health challenges. This theme also describes participants' perspectives about how to navigate challenges with mental health personally and in sport broadly, and their understanding of barriers to this process. This main theme consists of three subthemes: "Taking a Step Back"; Acknowledgement of Mental Health Problems; and Conflicted about Moving Forward with Mental Health.

#### ***"Taking a Step Back"***

The main strategy that all participants described for coping with their mental health challenges in a more helpful way was “taking a step back”. This process referred to participants’ abilities to step outside of their tunnel vision related to their sport and gain additional perspective. This represented in a shift in perspective for participants where they were able to see the situation with greater flexibility and understand their mental health difficulties as representing more than suboptimal sport performance. When participants did this, they were able to view their challenges differently and recognize that mental health may be playing a greater role in their challenges than they had realized previously. This also allowed participants to be more willing to shift their priorities away from sport and think about their sense of self and values more broadly. Participant seven described this process as being helpful for reconnecting with her motivation for engaging with sport:

I just worked on myself a bit more mentally, like taking a step back and feeling like what are the things that are driving me for my sport, what am I hoping to get out of it? Just like simple questions where I was like, what am I actually doing this for?

Athletes spoke of sport shifting in terms of importance and starting to integrate other goals and values into their lives to a greater extent (e.g., thinking about their career and academics, having more flexibility in terms of prioritizing social and family values).

For many participants, this shift in perspective was facilitated by disruptions in their daily routine that impacted the extent to which they were involved in their sport. Many disruptions previously mentioned, including performance declines, injury, the pandemic, and mental health problems themselves, served as circumstances that caused participants to be removed from their usual routine and have this shift in perspective. Participant five described this process when experiencing a performance decline:

But I wasn't performing to the best of my ability, and I was upset with myself with that.

But then after many talks with my coach, we decided collectively, that's probably the best idea for me to just step back and just look at everything and just kind of calm down.

Taking a step back allowed athletes to operate more flexibly as they continued to navigate their sport involvement, including being more accepting with themselves generally and the COVID-19 limitations, recognizing that the struggles are “temporary” (participant 2), and being more flexible in giving themselves rest when they needed it, as participant three described: “I recognize when I am struggling and give myself a wash day, try to set myself up for the next day.” Many participants noted that this was a shift from their previous ways of dealing with emotional difficulties that involved “pushing through” (participant 3), “leveling up” (participant 7), and forging on, despite this strategy not working. They also described using this strategy as a daily practice as they monitor their mental health where they can recognize when they are struggling and can prompt themselves to shift their perspective and break out of the tunnel vision.

Participants also described how challenging this perspective shift was due to the factors previously mentioned related to the development of their athlete identity and the tendency to invest further in sport when things are not going well, and how they can still fall into this pattern of overthinking and fixating on mistakes. Participant five noted that she continues to feel pressured to overly focus on her performance, push herself beyond her limits, and keep emotional struggles to herself due to her obligations to her team: “Because at the times where I felt like I wanted to pull away, I kind of knew I couldn't because I had an obligation to be with the team.” Overall, athletes reported that this practice of taking a step back takes effort and

awareness but has been helpful in addressing their mental health challenges and maintaining positive changes that participants had made.

### *Acknowledgement of Mental Health Problems*

All participants spoke of acknowledging mental health struggles as being important in addressing the mental health challenges that they had encountered. Acknowledgment represented a shift in their thinking where they became more open to the fact that they were struggling emotionally, rather than continuing to minimize or ignore this problem. Acknowledgement meant being open to and understanding their struggles for what they were: challenges with their mental health and not simply a performance decline or a personal inadequacy. This process involved recognizing that how they were managing, typically by pushing on and trying hard to improve/recover their performance, was not working, and being willing to address their mental health.

Acknowledging and opening up to their mental health challenges allowed participants to seek support in one form or another. Athletes described a sense of relief that came with acknowledgment and subsequent support seeking and being able to speak about their challenges more openly. Athletes noted that support that they received from their fellow athletes was important and brought a sense of comfort as described in the following quote: “It’s nice to know that someone else is feeling the same thing that you're feeling” (participant 3). Through this process, athletes were able to recognize the problems with hiding and minimizing their mental health problems. Participant six described the benefits of opening up to her family about her struggles and the impact that this had on their relationship:

I didn't want to hide who I am with them. I remember after talking with them about feelings and emotions and the difficulties, they start doing the same with me. It was

actually good because we are open 100% with each other and it strengthened the relationships.

On the other hand, participants noted how challenging it was for them to get to this point of acknowledgment, and they continued to grapple with acknowledging their mental health challenges. All participants noted that they wished they had sought help sooner but faced many barriers to doing so in terms of personal and perceived expectations from others, sport messaging broadly, and other barriers to help seeking (finances, not knowing where to go, time) that were described previously. Ironically, many athletes cited their history of being resilient, sacrificing, and facing physical challenges, all features of the athlete identity, as preventing them from acknowledging their mental health difficulties. Athletes noted that becoming accustomed to being pushed and challenged gradually made athletes desensitized to emotional and physical challenges. Athletes indicated that acknowledgment of mental health challenges needs to increase in sport in general for athletes to be more comfortable opening up about their mental health struggles.

### ***Conflicted about Moving Forward with Mental Health***

Generally, the tone surrounding mental health and how to move forward was conflicted. All participants described a tension between wanting to be more open about their emotional struggles and recognizing how helpful this would be, but also still feeling reluctant to do so. Athletes described a sense of stigma surrounding mental health in sport that was present broadly in the messaging about mental health in sport and that athletes themselves had internalized. Participant seven described how the sense of stigma about mental health was more prominent than many people realize:

I think the stigma of mental health is still there. As much as we say it's not. It is. Nobody wants to be that person that admits that they need help, I feel. I think that needs to change. I think people need to kind of accept that no, that really did affect me, and I do need to talk about it.

Many participants noted that they would not judge others or have not experienced direct discrimination or maltreatment for struggling emotionally, but they were still reluctant to fully accept and identify with this struggle. For instance, one participant described the sense of personal stigma that he felt about his mental health challenges:

I was just... I was scared to just come forward just in general, not because I was a man. It's just that I didn't want to be labeled as the kid with depression. So, I think my stigma was just like over the mental health stigma, not the mental health like athlete male stigma. I just didn't want to be the head of the mental health issue. I don't want to be known as, aw look at him. He's different. He's sick. (Participant 2)

Indeed, athletes acknowledged the need for change in the way that mental health is managed in sport but struggled to take steps in this direction on their own. It seemed that athletes were left feeling on the fence, so to speak, in terms of realizing that their current strategies were not working, that there were benefits to being more open about their mental health challenges, but also feeling reluctant to have mental health struggles be a part of who they are and the way that other people knew them.

Of note, several participants noted the importance of the coach's role in facilitating positive mental health. Currently, athletes did not seem to feel comfortable raising mental health concerns with their coaches but noted that it would be helpful if coaches would initiate this

conversation more often. Participants indicated that they felt it was important for coaches to check in on their athletes to see how they were doing emotionally and be aware of the resources that athletes can access related to mental health.

Overall, participants emphasized the value in working through emotional struggles, and noted that the things they learned from these experiences equipped them to deal with emotional challenges more effectively in the future. For instance, participant two reported, “I definitely focused and relied heavily on my friends this time around from the beginning rather than waiting for them to come and get me.” For many participants, having worked through a mental health struggle and learned strategies to manage these difficulties left them feeling optimistic and more understanding of the natural highs and lows that come with sport and life, as participant five expressed: “And it kind of taught me that it doesn't matter where you're at, and if you have lows, you can always overcome it. And what you do to overcome it makes you stronger.”

### **Discussion**

This study was one of the first to qualitatively explore Canadian student-athletes' experiences of mental health problems in sport. Findings emphasized the importance of the athlete identity, the internalized meanings and expectations associated with being an athlete, and how this identity influences athletes' mental health experiences including their understanding of and attempts to manage mental health problems. The main overarching theme underscores the importance of the athlete identity with four main themes that describe the development of the athlete identity, experiences that challenge this identity, including mental health and how athletes manage this experience, and where athletes in this study currently stand in terms of mental health. Findings highlight the need to address mental health in a more integrated way to target the stigma surrounding mental health that continues to be perpetuated in the sport environment.

The main central theme of the athlete identity has been described by other researchers, that have emphasized the importance of adhering to the athlete role and standards that athletes value (Brewer et al., 1993). Findings from this study are consistent with a theoretical framework posed by Hughes & Coakley (1991) who described a set of expectations and standards that athletes internalize and work hard to maintain known as the Sport Ethic. Specifically, Hughes and Coakley (1991) suggest that in order to identify oneself as an athlete one must i) make sacrifices in order to play and love the game at all costs, ii) strive to distinguish oneself, typically through winning and constantly pursuing improvement and perfection, iii) be courageous and composed in the face of challenges and never succumb to fear, pressure, and pain, and iv) accept no limits in one's potential. These ideals are reinforced and communicated through all aspects of an athlete's world, such that athletes deeply internalize these standards and learn from a young age that adhering to them distinguishes oneself as a *real* athlete (Hughes & Coakley, 1991). Athletes in the current study recognized elements of the Sport Ethic in their personal understandings of their athlete identity and described a history of being recognized and reinforced for ascribing to qualities of the Sport Ethic. This creates a feedback loop wherein athletes are compelled by this success and recognition to continue such adherence (Hughes & Coakley, 1991). Certainly, the stronger an athlete identifies with the athlete role, the more likely that they will be to adhere to the elements of the Sport Ethic (Brewer et al., 1993). However, athletes in the current study and others (e.g., Doherty et al., 2016) also noted that the encouragement that they received for adhering to the Sport Ethic can create a problem in such a way that one's sense of identity and self-worth become heavily tied to upholding these ideals and belonging to this group. This was particularly problematic for athletes in this study when they encountered challenges to upholding these standards, such as when they experienced an injury,

performance decline, or struggled with their mental health, and worried about the threat of losing their sense of “family” in their sporting world due to these disruptions. Indeed, other research has emphasized the relationship between sport-related social supports, athlete identity, and mental health (Graupensperger et al., 2020).

The current study was among the first to examine some of the factors that contribute to the development of the athlete identity and described some of the specific experiences that develop and maintain athletes’ identities. Findings emphasize that athletes’ identity development is a fluid and dynamic process that involves personal perceptions and feedback from others in their sporting world. This is consistent with the theoretical model proposed by Hughes and Coakley (1991) who posit that athletes are both internally and externally motivated to maintain their identity as an elite athlete.

Participants in the current study emphasized the complexities and nuance associated with the athlete identity and the paradoxical nature of identifying as an athlete. On one hand, participants described how the pressure that they felt to maintain these standards was inspiring and motivating and built their character and fortitude over time. Indeed, athletes identified numerous benefits for their mental health related to their sport involvement including social support, having a regular routine that provided consistent structure for their lives, character development (e.g., independence, leadership, initiative, perseverance), goal setting, and opportunities to be of service to their community. Additionally, athletes cited these characteristics as being beneficial for navigating the COVID-19 restrictions. For instance, athletes cited many ways that they adapted their training regimes, maintained social connections, and attended to other important aspects of their lives (e.g., new hobbies, moving home with family) during the pandemic. Further, they all described creative ways that they maintained

regular physical activity during the COVID-19 restrictions, which was also helpful for their mental health (e.g., training outdoors, focusing on other aspects of their sport training such as strength). Another study conducted among student-athletes identified similar strategies that athletes utilized to bolster and maintain their mental health throughout their competitive sport season including focusing on positives of the situation, taking a break from sport during their season and in the off-season, planning, and building positive connections within and beyond sport (Pankow et al., 2021). Further, engagement in regular physical activity can protect against the development and worsening of mental health problems (Brown et al., 2021; Smith & Merwin, 2021) and athletes in the current study discussed physical activity as a helpful mental health coping strategy. Overall, athletes in the current study expressed that sport was a meaningful endeavor that was fulfilling and important to them. These benefits that athletes referred to are important to highlight and emphasize how understanding mental health in a competitive sport context is nuanced and complex. Appreciation for the positive impacts of sport on athletes' mental health is important when attempting to understand mental health in a competitive sport context.

On the other hand, the internalized pressure to uphold their athlete identity that athletes described was costly to their well-being, specifically when trying to manage mental health challenges. This importance of athlete identity and maintaining membership in this group is relevant when considering the types of mental health support to implement in sporting contexts. When discussing mental health in sport, it is critical to understand that there is nuance in addressing mental health in the unique sport context and approaches to education and intervention will need to be tailored to particular environments (Castaldelli-Maia et al., 2019; Egan, 2019). For instance, other research has cited the importance of the mental health provider

having sufficient knowledge of sporting culture in athletes' willingness to seek help and positive help-seeking outcomes (Bird et al., 2018). Thus, it is important to understand that the messaging surrounding mental health in sport will need to change broadly before athletes may be willing to manage their mental health differently on their own.

The findings from this study were consistent with existing research around help-seeking and stigma in sport. Participants reported concern about seeking psychology support for mental health problems, though they were comfortable talking to a psychology professional about performance-related concerns, which is consistent with other studies conducted among athletes (Gulliver et al., 2012). One reason for athletes' hesitancy to seek support for their mental health concerns was related to stigma. Athletes in this study described a sense of stigma surrounding mental health issues that was present in the sporting environment at large. This is consistent with the current research among athletes that has found that fear of stigma is the most common reason that athletes refrain from seeking mental health support (Castaldelli-Maia et al., 2019; Gulliver et al., 2012; Moreland et al., 2018), and that athletes tend to hold higher rates of self and perceived other stigma surrounding mental health concerns compared to non-athletes (Kaier et al., 2015). Mental health stigma is a multi-faceted concept and involves self (our perceptions of how we feel about our own mental health problems) and perceived other stigma (our perceptions of what others think of people with mental health problems). Some researchers have further differentiated stigma in terms of stigma about having a mental health problem and stigma about seeking help for a mental health problem (Tucker et al., 2013). These are distinct but related concepts. For instance, Vogel and colleagues (2007) described a theoretical framework whereby perceived other stigma regarding mental health help-seeking can become internalized as self-stigma of help-seeking and further undermines help-seeking, attitudes, intentions, and

behaviours. Indeed, athletes in the current study and others (Castaldelli-Maia et al., 2019; Kaier et al., 2015) have cited stigma as a significant factor related to mental health and mental health help-seeking. Further exploration of the multiple dimensions of mental health stigma and mental health help-seeking stigma is warranted to gain a specific understanding the impact of stigma on athletes' mental health in sport.

This prevalence of stigma may be perpetuated by the position of psychology services in the sporting system at large. For example, athletes in this study cited the integration of psychological supports into their training environments as a facilitator for help-seeking. Certainly, this is beneficial in terms of increasing both the visibility of psychological services and addressing barriers to accessing supports (e.g., lack of time; Bird et al., 2018). From a practical perspective, it is worth considering to what extent mental health supports are integrated into the athletic environment and communicated as an integral part of the athlete identity and day to day operations as opposed to an additional service to be sought on an as needed basis on athletes' own time (Tomalski et al., 2019). For mental health services that are provided, it would be beneficial to ensure that sport specific as well as general mental health strategies are integrated and imparted throughout the training program (Fogaca, 2019).

Related to athletes' concerns about stigma surrounding mental health, athletes in this study described a general gap in knowledge and messaging surrounding mental health in sport. Similar to other studies conducted among athletes, participants in this study described hesitancy about pursuing mental health support due to reluctance to disclose mental health problems, uncertainty about when it was appropriate to seek treatment (Bird et al., 2018; Gulliver et al., 2012), and difficulties recognizing and labeling mental health problems (Castaldelli-Maia et al., 2019). They noted that in some instances, education and skills training were provided for their

sport performance or general stress management, but there was little information about the spectrum of mental health concerns ranging from normal levels of distress to clinically relevant disorders. For example, one athlete noted uncertainty about what levels of mental distress warranted psychological help-seeking when their difficulties did not involve self-harm or suicidal ideation. This struggle to recognize mental health problems and when it is necessary to seek additional psychological support cited by athletes in this study bears out in the broader scientific literature among athletes (Bird et al., 2018; Casteldelli-Maia et al., 2019). Indeed, the presence and impact of mental health problems in sport is nuanced and may be challenging to identify given that the functional impact of mental health problems may not be as pronounced among athletes (Henriksen et al., 2020; Kuettel & Larsen, 2020). For example, despite struggling emotionally, athletes may continue to function at a high level, due to the capacity to manage challenging experiences that they have fostered throughout their sport environment (Pankow et al., 2021; Van Slingerland et al., 2018), and may not display overt signs of distress or functional impairment. These findings emphasize the importance of increasing knowledge and awareness surrounding mental health problems in sport and further, having professionals integrated into the sport environment with training in assessment and treatment of clinical mental health presentations (Kuettel & Larsen, 2020; Tomalski, 2019).

### **Implications**

There are several clinical and practical implications that can be drawn based on the findings of this study. First, all participants acknowledged that the stigma surrounding mental health in sport was prominent. They provided some helpful context in terms of how stigma surrounding mental health has been perpetuated in sport in terms of general sport messaging and lack of information about mental health in the broader sport context. Though no participants

reported experiencing overt discrimination or maltreatment related to mental health, the general attitude about wanting to hide mental health problems has persisted and was a significant barrier to participants receiving appropriate support for their mental health difficulties.

Participants noted that providing more information about the range of clinical mental health problems would be helpful, rather than only providing sport specific and general stress management strategies or crisis resources. Indeed, gaps in mental health knowledge have been identified as significant barriers to mental health help-seeking (Bird et al., 2018; Casteldelli-Maia et al., 2019). Relatedly, athletes seemed misinformed about the relationship between their mental health and their performance, and many noted that they were unclear about the potential benefits of addressing their mental health problems, rather than continuing to suffer through them or trying to address them on their own. Ensuring that athletes and coaches understand the benefits of seeking psychological support has been identified as an important factor in mental health help-seeking behaviour among athletes (Bird et al., 2018; Casteldelli-Maia et al., 2019), and should be a focus for interventions surrounding mental health awareness in sport. Further, an increasing number of studies have trialed interventions aimed at increasing mental health literacy and awareness among athletes and sport staff (Breslin et al., 2017; Tomalski, 2019). Such interventions may involve mental health education, mental health first aid, anti-stigma programs, and information about mental health resources. Though the literature is fairly limited in terms of evaluating the effectiveness of these interventions, results from a review indicated that interventions that targeted aspects of mental health literacy (i.e., mental health first aid, mental health awareness, role playing) were effective at improving referral efficacy and mental health awareness and reducing stigma (Breslin et al., 2017; Casteldelli-Maia et al., 2019; Liao et al., 2023). These initial findings are promising as brief mental health literacy interventions may

provide a feasible intervention target to improve mental health literacy and reduce stigma associated with mental health among student-athletes. Notably, one recent review found that while mental health literacy interventions improved mental health knowledge and reduced stigma, they did not significantly improve participants' psychological help-seeking willingness or behaviour (Liao et al., 2023). Further, the initial benefits (increased mental health knowledge, reduced stigma) of the interventions were not sustained over time (Liao et al., 2023). Therefore, while these interventions show some initial promise, it is important that interventions that target mental health literacy are ongoing and account for individuals' constantly evolving mental health experiences. Relatedly, other researchers have found benefits of integrating general mental health and sport specific strategies in terms of reducing mental health symptoms and improving general coping abilities (Fogaca, 2019). However, more research is needed to develop and evaluate the effectiveness of these interventions. A systemic shift will need to take place in terms of the type of information that is provided to athletes in terms of mental health and the supports that are in place in athletes' sport environments to assist them as they navigate their mental health throughout their involvement in sport. It is my impression that this reflects a general gap in the role of psychology in sport, where traditionally, psychology professionals have been implemented into sport for performance enhancement purposes but may lack the knowledge and skills to identify and intervene when mental health concerns arise.

Participants also identified the importance of having psychological support embedded into the sporting environment, so that participants did not have to seek additional services on their own, which their sport and academic schedules and finances did not allow for. Indeed, existing literature supports the importance of embedding mental health supports into the university or training environment and ensuring that services are readily available (Casteldelli-

Maia et al., 2019; Reardon et al., 2019; Tomalski, 2019). Relatedly, care should be given about the type of psychology professionals that are situated within a sporting context and it would be important to ensure that those individuals can address a range of clinical mental health problems, in addition to performance enhancement strategies, and have an understanding of the unique sport context (Reardon et al., 2019; Tomalski, 2019). In addition to providing athletes with access to professionals who can properly assess and treat mental health concerns, coaches and other sport support staff (e.g., athletic therapists, trainers, administrative staff, etc.) should be informed about how to recognize and discuss mental health with their athletes, encourage their athletes to seek help when needed, and be able to direct athletes to appropriate resources (Bird et al., 2018, Casteldelli-Maia et al., 2019; Reardon et al., 2019).

An additional step to addressing the missing information and lack of openness surrounding mental health in sport would be to implement routine monitoring of athletes' mental health using validated instruments, as early detection of mental health problems is associated with improved clinical and performance outcomes (Chang et al., 2020; Egan, 2019) and helps to normalize the topic of mental health in sport (Putukian, 2016). Monitoring athletes' mental health symptoms and desire for additional mental health supports has been recommended as a part of preparticipation screening and throughout athletes' sport involvement, specifically during times of emotional vulnerability (i.e., injury, transition out of sport, performance declines; Putukian, 2016; Rice et al., 2016). Additionally, ensuring that licenced mental health professionals are in place to support athletes in early detection, accurate diagnosis, and prompt treatment of mental health concerns is critical (Tomalski, 2019).

Finally, increasing or maintaining the amount of social support that is available for athletes regarding mental health in sport may be beneficial, as athletes noted that it was

challenging to open up to others, despite being aware of the benefits of doing so and being constantly surrounded by their teammates. Indeed, maintaining a sense of belongingness and social connectedness to athletes' sporting groups, particularly during times of transition (i.e., the COVID 19 pandemic), has been associated with well-being and maintenance of athletic identity (Graupensperger et al., 2020). Group or peer-based support models require specific considerations about confidentiality that must be considered prior to commencing such interventions (Tomalski, 2019), and involvement of coaches and other sport stakeholders and staff would be integral to the success of these interventions (Fogaca, 2019). Nonetheless, helping athletes to foster and utilize social supports within and beyond their sporting world has the potential to reduce mental health symptoms, improve their emotional capacity to navigate difficult sport experiences (Pankow et al., 2021), and increase athletes' general and sport specific coping abilities when they encounter challenges (Fogaca, 2019). This shift in culture will need to take place at the systemic level to provide the psychological safety and effective platforms for athletes to be able to learn about and more openly discuss mental health concerns. Athletes should be encouraged to acknowledge and embrace their difficulties, emotional or physical, as a part of their sporting story and be encouraged to integrate those experiences into their athlete identities. Further, visibility about mental health athletes' experiences with mental health struggles should increase in sport at large across competitive levels. Indeed, there will be discomfort and uncertainty as athletes navigate change potential changes to the culture surrounding mental health in sport. However, such a change is desired by athletes in this study and will be necessary to adequately support athletes' emotional wellness (Casteldelli-Maia et al., 2019).

### **Limitations and Future Directions**

This study is novel in that it is among the few studies to qualitatively examine student athletes' mental health experiences and has highlighted some of the key barriers and facilitators to adequately addressing mental health problems in sport. Though novel, this study was limited to a small number of student-athletes who primarily identified as white and female from a central Canadian university who represented relatively few sports. More research with larger and more diverse athlete samples in terms of cultural and ethnic groups, 2SLGBTQ+, and socioeconomic status, and sport type (e.g., leanness focused, contact sports, team sport vs. individual sports) is needed in order to further contextualize and broaden these results, as aspects of diversity will undoubtedly impact athletes' experiences with navigating mental health in sport. Athletes who represent marginalized groups have been identified as being at heightened risk for adverse mental health due to intersecting discrimination related to various aspects of their identity and face additional barriers to accessing mental health supports (Ballesteros & Tran, 2018; DeFoor et al., 2018). As such, it would be important to capture the experiences of athletes who represent marginalized groups in order to more fully understand and address the compounding challenges that these groups face that impact their mental health (DeFoor et al., 2018). Further, participation in this study was limited to those who had mental health concerns and may not reflect the spectrum of mental health experiences among athletes. Qualitative studies that focus on the mental health experiences among both help-seeking and non-help seeking athletes with a broad range of mental health experiences is warranted to further understand barriers and facilitators to mental health knowledge, recognition, and help-seeking among student-athletes. Finally, given the prominence of stigma related to mental health that athletes in this study and others described, future research should continue to examine stigma in sport. Further exploring the unique impacts of stigma, including perceived other and self-stigma and stigma related to

student-athletes' mental health and mental health help-seeking, using varying methodological approaches would be beneficial, with the goal of understanding the scope of varying domains of mental health stigma in sport and its impact on help-seeking.

**Table 1***Summary of Supporting Quotes*

Theme	Quote	Participant Number
<b>The Athlete Identity: The Tensions in Upholding Athlete Standards</b>	<i>I guess I just want to be able to maximize whatever time I have, I don't want to I'd rather not waste it. I want to do something productive in my time, whether it's training to get better for whatever sport I'm doing or whatever, or if it's studying so I can have good grades. So I just want to I just want to make the most of my time, basically. I just want to be as productive as possible.</i>	3
	<i>And then especially if you don't PB in [a competition]and you feel worse, you say there's nothing. You don't even try and look for good in that [competition]. You won't be like well, my first four hundred was... like you were slow from the [start]. You felt sluggish [start]. Like you got to fix something, maybe it's your diet, maybe change something up, maybe what you're wearing, like you just you go your head spirals, especially if you don't [perform well].</i>	2
	<i>I'm a very high achiever and expect to do everything to the best of my abilities and be 100 percent.</i>	4
	<i>... but seeing how mentally strong I am to be able to put through all these situations and circumstances and how if I can do this, then why shouldn't I be able to continue it? So it kind of pushes me to just continue and see how far I can go.</i>	1
	<i>Um, personal development this past year, I had a big year like improvement wise I my personal best increased [significantly] in one year. I was able to make the traveling team to just like that motivation for myself, to see myself get better and to see what I can do. I think that's probably the biggest motivation for me.</i>	3
	<i>I was also really stressed with school because same thing in a way where I put a lot of pressure on myself to do well (as I do with sports). Yeah, so, school and academics really altered my mental health.</i>	5
	<i>Like everything was required and it didn't feel like I had an option.</i>	4
<b>Shaping Identity Seeing Potential</b>	<i>It probably started in high school when I was kind of starting to look into being more serious with [my sport] and seeing how many girls my age group kind of</i>	1

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- dropping out and seeing that I did have a potential to go play somewhere else*
- I think that comes from definitely more sport than me as a person, because, like I said, going back earlier, you want the recognition and you want the recognition, but being the best you can and you overanalyze everything you did wrong because, I mean, you're not being the best that you can be if you did something wrong. So I think it all goes back to just the fact that people, especially athletes, want to be recognized for something. So that's why athletes in general are more hard on themselves.* 2
- And then in my... year, I ended up winning [my sport] Provincials and the one of the throwing coaches was there. And so he saw me and he was like, hey, would you be interested in doing [my sport] next year at the U of M?* 3
- And I just kind of a goal of mine because I wanted to pursue the sport as far as I could see what I could benefit from in terms of meeting people or getting new experience.* 5
- Yes, because I know that if I wasn't a [university] athlete, then I feel like I wouldn't have those opportunities to do so. I mean, I definitely could, but I feel like I mentioned earlier, it's almost easier when you're involved with the sport if that makes sense.* 5
- And besides the [sport], we get to do things within the community to help give back and just to stay connected. And I think that is a big factor in me wanting to stay within it, because if I wasn't in that then I feel like it'd be harder for me to get out there like I wouldn't. But it's easier for me. And I feel like I have more of a purpose giving back when I am with the team.* 5
- Something I started doing last year, I guess, is I always I have like a sticky note on my desk and it's just the next [goal] I want to get to in [my sport], so. It started off at like the travel standard or whatever to get on the bus, and then when I hit that, it went to something else. So I did- I like always having like a visible goal for myself, something like I see it every day, so it's just a constant reminder of what I'm working towards.* 3
- As an athlete, you always have big dreams.* 6
- ... pursuing [my sport] has always kind of been a goal of mine from a relatively young age.* 5
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	<i>I would still be. Still high level, but gaining so much experience in terms of traveling people experience and just seeing, and then I feel like I feel like those go hand in hand. I can experience whatever it is with continuing passion for the sport.</i>	5
Sacrifice	<i>I think it was just the expectation is understanding that this just needs to get done like this is just how it is. You're going to be busy in school, if you want to get where you want to go, like no one said, it was easy and it's on paper, this is what you're supposed to be doing. You're supposed to be able to work, go to school and volunteer to be like, people have done it before me, people do it after me.</i>	4
	<i>I feel like when you're involved in sports, you have to be like, oh, I don't want to use the word selfish, but you have to kind of be selfish in the way that you have to, like, be like, no, I can't go out because I need to go to bed or I can't go see my friend because I need to save money so that I can go to school and afford gas to go to school, you know, like it's small things like that, where it's like there's a bigger goal in mind than just going to go out and have a few drinks with your buddies or something like that.</i>	7
	<i>Yeah, I think after the first year I was I was struggling with a lot of things. Nutrition and, you know, the communication with my teammates and many other difficulties that arose at the time with the team, and I was like, you know, [my sport] is completely different here. I don't want to be here anymore. But then especially one of my best friends... I talk to her and she said that you have worked so hard for this, you shouldn't leave. This is your dream. Go for it. Keep living it right? And do your best until you die [doing my sport]. Basically, that's what she said. And I was yeah. I was thinking about, you know, like I worked so hard to be in Canada, to be fit, like athletic, you know, to be part of that team and to keep taking care of myself by myself. And then I was like, OK, I'm not going to quit unless something big happens, because, of course, I'm a student. I have to survive by myself and then I have to study, work and play, which was a huge commitment. And I don't know how I did it. But yeah, I was like, OK, no one else is doing this challenge rather than me. So, OK, I'm going to prove everyone that you can do it.</i>	6

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*I don't know. I guess like because [my sport] is something that I've committed to, I put time and effort into and with especially with a university career, you only have so many years. So by- It's like sometimes it's hard to justify taking off, even though it's only like three months or something, it's like in the long run. Well other people aren't taking off those three months. This year's definitely been one of the harder ones with the pandemic and lack of competition, because usually what motivates me is competing like I want to compete, I want to go out there and show myself that all the training that I've been doing has been working, especially this year, since I switched coaches. It's something that I just want to prove to myself that I was the right decision for me.*

*A lot of sacrifice, a lot of not going to parties when I was in high school, a lot of not really boyfriends or girlfriends or anything like that, kind of just dedicated to my sport and trying to get better so that I could perform later on, taking care of my body, all that stuff. So, it was just like trying to work towards something like a goal, like going into university and having schooling, maybe paid for.*

*So we would have to travel almost every weekend to go play, especially during the winter, because the fields here would be closed, right? And so basically what we would do is we get on a bus at Sunday morning at like 7:00 or so, and then we travel, compete, come back at night. And I feel like that instilled a lot of independence within me. And I feel like that, especially from such a young age. I feel like that made me learn so much and I feel like that wanted me to grow more and see what else is out there.*

*Like I didn't feel like not that I didn't feel like I could go to my coach and say, like, I need to practice off because I'm busy. But like he would have said, yeah, sure, no problem. But it felt like I, I still couldn't do that or that I would be like hindering my own success or like disappointing them because I couldn't manage and I should be able to manage. And I take pride in being a student athlete and so being able to juggle that. And so then to admit that I couldn't was kind of like a sense of failure, I guess.*

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	<i>I feel like it's not so much about being recognized, but definitely proving my ability and I feel like I've just worked so hard...</i>	5
	<i>For me personally, it's like there's just a lot of hard work and a lot of people don't see that goes in the [my sport] athletes like it's like the off days when you're supposed to be resting, but you do like a like a strength circuit at home, especially now you have like I have one medicine ball in my house and I'm making it work for my stuff. And it's the workouts on the icy roads in these conditions because we can't go to the [facilities] because they're closed or they're in elementary school. And I don't think that would be safe. Like, it's there's a lot of hard work that goes into what people see on the track, like on race day, both on the mental side and the physical side, that I feel like getting recognized is something that most, if not all [my sport] athletes kind of like dream about if they take the sport seriously like they want to be. I don't want to say a household name, but the coach, they want the coaches and stuff, certainly to know who you are. And a scholarship was kind of the best way to show that, I guess.</i>	2
Sport as Home: "It's all I've Known"	<i>Maybe a little bit like I just... I didn't I got a new job, so I wasn't really able to do much [my sport], so I didn't do any training over the summer, really. So I was like, hard for me to accept, I guess, like. Very rarely have I ever put a job above sports, so it was kind of hard for me to say OK, well, I'm going to put this first priority and then put back on the back burner, but then it was like I don't know, I guess the way I rationalized it was or I came to terms rationalizing it was that you know, there's no there's probably going to be no competition in the fall, so like you putting off your training for three months might not be the worst thing right now if you can work more. But that was definitely hard for me to accept.</i>	3
	<i>... like the most part was, is the team, because I've created so many friendships throughout being here.</i>	5
	<i>Not having your parents hover over you like you're just kind of on your own, right? And whether you're dealing with adversity, you kind of have to deal with it on your own. And I feel like with the help of the friends I've made, they've kind of helped shape me into how I would deal with that, if that makes sense.</i>	5

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	<i>And I think it's important to give back to that and show that we are thankful for that.</i>	5
	<i>And that's another thing to do about the team, is that regardless of how close you are with someone like they are there for you.</i>	5
	<i>Definitely like the structure, the organization, the way that it had a purpose, you know, that we weren't just all showing up at the gym and just hoping for the best, that there was a perceived outcome, I guess, for what we were going to learn that day or work on that day, whether it was an offensive drill or defense, something, you know, there was an outcome. I liked that.</i>	3
	<i>...you know, in Canada, as an international student, the team became my family, so I didn't have anywhere else to go.</i>	6
	<i>The team aspect, like our group of [my teammates], especially, that they've become like very close friends, and that's not something that I would lightly decide to just I guess I'm done.</i>	4
<b>Navigating the Complexities of Disruptions to the Athlete Identity</b>		
Disruption Experiences	<i>And then you have, like, the times where it's like you're getting sat because you're not having the best game and then you're just like overthinking about stuff and then just beating yourself down and then just in general, not feeling good enough for your sport where you're like all these other girls are better than me. And I'm just here and I'm just I'm trying really hard, but I'm not getting anywhere. And then just like feeling like you're not doing enough, no matter like what you're doing. Felt that like quite often.</i>	7
	<i>Because, like, you're at that level where you work so hard to get there. And I feel like when you're at that level, you have to hold a certain standard. Or level of expectations.</i>	5
	<i>So, I feel like at the beginning it wasn't bothering me. But then also, like moving through the season, I feel like it was like, oh, like there's more at stake here. Oh. Like I might lose my spot over this.</i>	5
	<i>So, to say, I'm always up here and then if I get injured, you're kind of brought back down because either you're scared to do something or you're not one hundred percent. So I feel like I'm not 100 percent with the rest of the team. So I feel kind of. I almost feel a little bit down on myself because I'm not at 100 percent where I should be.</i>	1

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*And I feel like after finals, like after I know what my grades are, then I can decipher whether I'll be mentally good or not, because I'm also pretty well put my mental health on how like in terms of how I'm feeling on how I'm doing in school.* 5

*A bit. Like I've been in leadership roles in sports for many years, like I was a captain of most of [my sport] teams, and I think that's like a personality trait that I have independent of sport. But I think it comes through a lot in sports and which might be another source of pressure that I feel, too, because I'm supposed to be the leader. Therefore, I'm supposed to be performing the best. Therefore, when I don't, it feels like I'm a fake kind of.* 4

*And I'm just here and I'm just I'm trying really hard, but I'm not getting anywhere. And then just like feeling like you're not doing enough, no matter like what you're doing. Felt that like quite often.* 7

*I think sports is like a good I don't know how to word this, but it's a good way to challenge you mentally for sure. It's it does build you stronger, but it also breaks down really easily, especially if you're not performing your best, especially you get down on yourself very easily because you go from being that all star player to all of a sudden getting like three minutes a game. And you're like, what did I do wrong? And then you just beat yourself up. Right? So, it's definitely something where it can really help you, but it can also just like kind of destroy you very quickly. So, I've definitely felt the highs and lows of the game, but yeah.* 7

*There's very little room for mistake* 5

*Because, like, you're at that level where you work so hard to get there. And I feel like when you're at that level, you have to hold a certain standard. Or level of expectations* 5

*Yeah because then at that point, there's like maybe three or four weeks left of season, so it was like just over the half way point. So, it's like you're almost there, but you're not quite. So it's just like, oh, like I might as well just push through because we're almost done.* 5

*... because I mean like if I take a step back, then it's kind of like... Not putting yourself at a disadvantage, but it's like you're kind of just like letting others into your possession, which I don't know if that sounds shitty or not, but (No) because it is like don't get me wrong. I love my teammates and I'm happy for* 5

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## Pandemic

*opportunities that they have as well. I I'm supportive to that, but it's. You're trying to work towards, like yourself getting to that position, so especially with a goal, like there's only one spot, right?*

*I think things started getting better over the school year and then I think when COVID hit again, it kind of brought a lot of those feelings back just because the uncertainty and then staying home all the time, not being able to just live how I normally would kind of stressed me out a little bit, just having to see the same three people was... Kind of irritating.*

*... motivation has wavered quite a bit like training wise. Sometimes it'll be like. There's like I've got all this motivation, it's like I'm going to do everything I can, I'm going to increase all my training, whatever, just do as much as I can to get better for when this is over. But then some days it's like, well, what's the point?*

*It's definitely kind of closed the walls in a little bit.*

*Since the start of everything, I feel like it's harder for me to just separate because I do pretty much everything in the same room, like I do all my schoolwork. I do everything pretty much in the same room all day. So, I find it's hard for me to separate, like going to sleep, like for me to be able to turn my mind off.*

*Yeah. In September, we were kind of under the impression that we were going to go ahead like we were training regularly. We were actually had our first week into training and had meetings and stuff. And then when I got like yanked when basically overnight, they just said we're shutting everything down. That was kind of hard to cope with, I guess.*

*I've just been trying to find like other areas I can work on that maybe aren't necessarily like the bigger things that I work on to try to find like, like the smaller things that I never really thought about or really spent the time working on when I had like when everything else was open to working more on core strength and flexibility and that kind of stuff, it's like stuff that you don't really need a ton of equipment or stuff for. Trying to focus more on the stuff I can do*

*I guess lately I've been doing my workouts before bed, so I'll finish whatever schoolwork I was working on and then I go workout and then cool down and everything, shower and then just this nightly routine, I guess, brush my teeth, wash my face kind of stuff and then go to bed.*

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- So, I try - I've been trying to use physical activity as a way to separate the time I spend at school and then going to bed instead of just going right from. You know, reading a - some academic journal and then falling asleep. So, it's the I find the last couple weeks since I've done that, I found it's helped a bit more.*
- Like we just do too much and then. And the other winter, I feel like that's another thing, especially since you're not really working towards anything at that point because there's no season to look forward to, like the season's in September, like when you're working at it in January, it's like, oh, I can work on this in June or July or whatever, but it's like, what am I looking forward to?* 5
- I mean, like with covid and just like being online and just like being isolated from yourself, kind of it's just hard because you're not having that break from school, especially like in lockdown, it's like you go downstairs, make breakfast, go upstairs, eat, do homework and that's it. You can't go anywhere.* 5
- But it's like you log on, you're there for two hours, you close it and then you're still where you are. So, I feel like that sucks.* 5
- ... because if I don't specifically speaking with eating, it's like if I don't eat, then it's like, well, what am I doing? I'm not fueling my body and doing this. But at the same time I'm like, oh, but I'm not working out... so I don't need to.* 5
- ... too much time to be alone with my thoughts.* 2
- I don't know how if I would explain it as like anxious, but just kind of like. I don't I don't know, I felt like I needed to make sure I was filling the time was something.* 3
- ... it's not like I had my support taken away from me because I didn't, but it was like that stability of knowing that you'll see them every day, knowing that you will chat was gone. So it was kind of like a perceived instability.* 4
- I think all the other fifth years also have the same mentality where there's no point in us killing ourselves over the summer just to practice for three months. And it was just it'd be better if we kind of just got our own stuff together, figured out our lives a little bit more, as opposed to focusing on trying to practice so much.* 1
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Urgency to Resolve Disruptions: Tunnel vision	<i>I've been trying to use physical activity as a way to separate the time I spend at school and then going to bed.</i>	4
	<i>It definitely just takes a toll on you, on me, especially because it's like I really like, bring it along. Like I definitely carry it around with me to the next practice, so I always go to next practice (go on) with that thinking, like, I don't want this to be as bad as the last one, like this is going to be as bad as the last one. This is going to suck because I haven't done anything different from that last one.</i>	2
	<i>I'm doing so good in the gym but I'm not doing good in the [competition]. And then you're just trying to figure it out all the time and then it gets really exhausting.</i>	7
	<i>Like my family is not the of those like rich families where it's like they can pay for schooling and pay for [my sport] equipment and everything. And as a child, I kind of was that gifted child that was going to go somewhere with [my sport]. So, they put everything in programs. They put everything in camps to make sure that I got that opportunity. And I did. I, I got it. But it was also that pressure of like keeping it together and still performing and still doing good in school. So, I think that was kind of like a breaking point where it was like this is almost too much pressure and I'm already failing.</i>	7
	<i>Right after it happened, I was just really upset because I was trying to make myself recover for the next weekend because next weekend was playoffs. Oh, I was trying to do everything I could, eating a bunch of salmon and anything that could help speed up the recovery process. But then, obviously, you can't heal a concussion, just like nothing like any other injury. Like you can't just bandage it up.</i>	1
	<i>I think sports is like a good way to challenge you mentally for sure. It's it does build you stronger, but it also breaks you down really easily, especially if you're not performing your best, you get down on yourself very easily because you go from being that all star player to all of a sudden getting like three minutes a game. And you're like, what did I do wrong? And then you just beat yourself up. Right? So, it's definitely something where it can really help you, but it can also just like kind of destroy you very quickly. So I've definitely felt the highs and lows of the game.</i>	7

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	<i>Like I feel I like to set like approximate goals because if they're too rigid then I tend to beat myself up. If I don't reach them when especially with the [my sport] season when there's like finite dates and [competitions] and things. And like that's something that I've learned from previous years is when I'm very rigid about my goals, I end up performing worse because I'm so worried about attaining them. And then I do feel worse and feel like I let everyone down, which is not good.</i>	4
	<i>But then after many talks with my coach, we decided collectively, that's probably the best idea for me to just step back and just look at everything and just kind of calm down because I feel like I would get too worked up, too frazzled and just like too easily scared in a sense, where I just didn't want to make any mistakes. And I feel like that was pretty detrimental to my mental health because I'm a perfectionist.</i>	5
	<i>But especially for after my injury, I became more impatient because I want to fix stuff right away or to do things or to solve things right away. And I couldn't, of course. And I started experiencing more like my body shakes kind of thing.</i>	6
Performance as the Problem and the Solution: Sport as Coping	<i>I was just I was always down and looking for, like, anything to take my mind off of [my sport]. And [my sport] is like a pretty big part of my life, like this thing here is from Western Canada Summer Games... So that's always a constant reminder of it. I have like a bulletin board like right here that just has like all of the [competition gear]. So, [my sport]'s all around me essentially, so it's kind of hard to, like, escape it. So, I would always like to sit in like our basement, like living room, and I would just like stare at the TV just like, OK, like something that isn't [my sport], please. So, I definitely-- because this is where I do my school work, so I definitely push my schoolwork aside because of [my sport]. And so now I'm paying for it now and the midterm season and project season, so it's a little tough.</i>	2
	<i>Like it's kind of it's a nice just like the sport is an escape for school, this team group is kind of an escape from the rest of what's going on in my life, if that makes sense.</i>	4
	<i>If anything, sport was like a relief for me. Yeah, that was just due to some other factors in my life. Sport definitely was like an escape for me at that time,</i>	2

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	<i>though, like definitely [my sport] helped, like I was [doing my sport] more in my grade 11 year, like more miles per week, my grade 11 year than I am now, just because I just I needed it. Also, I kind of got burnt out, so I lowered the volume, focused more on the actual quality of the workouts and you'll be OK.</i>	
	<i>Those are the main ones, mostly filling the time, usually with exercise or some sort of movement. I find that that's the best way for me to calm down.</i>	3
	<i>I have always been like a positive girl, I'll say, and then, you know, just the fact of thinking negative things make me feel bad. And I didn't want to be like that, and I didn't want to live like that. So I always when I think like this uh I started, you know, working out or even though I had this injury, I was able to do other kind of exercises. So, basically I remember I was at the lab, for example, many days, and I feel low and then I just leave everything. I went to the gym and started working out and trying to relieve that stress or to change that mentality. To switch.</i>	6
	<i>And then after that, once I was cleared to train again, I started going to the gym more, which helped as well. It made me feel like I was kind of getting back on track without having to go to practices and without having the full contact.</i>	1
	<i>And it's a lot of fun. It keeps me active. It's something outside of academics that I can put goals on and work hard to achieve, and especially gym related goals and things, too. And also, it's a great outlet from school.</i>	4
<b>The Struggles with Struggling: Making Sense of Mental Health Problems</b>	<i>Yeah. Like I guess there's a lot of stuff on the Internet and not necessarily with people I know, but that's just kind of like the overall perception of what school is supposed to be like. It's supposed to be super hard and you're supposed to. Yeah. And people pull all nighters all the time for getting their work done. And yeah, eating habits change like that or whatever. Like it's kind of just expected. and I guess I always had like the end idea, like when the semester is done then I'll start working and then everything will go back to normal and everything will be fine. And I just need to push through this piece and then everything will be OK.</i>	4
	<i>Probably many people don't think about it, but at some point you start thinking about how people look at you, you know, because as I said at the beginning, you are a kind of a point of reference for many other people. So,</i>	6

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Sport Messaging:  
Missing Mental Health  
Information

*and even if you don't think about it, many people are watching you. Right? And if you show weak, all the people are going to look at you, weak. And it's OK to not be OK, as people say. But sometimes as an athlete, we were very, very hard with ourselves.*

*And the reason I went to my sports psychologist when my performance was struggling was because I knew that was purely about just me being a paranoid freak, almost like I knew the issue going into it. Like she wasn't the one who identified the issue for me. I told her my issue so she could help me with it. So that's kind of why I went there, because I knew what was going wrong there. I didn't know really what was going wrong in my high school years (when I was struggling emotionally).*

*Like I was saying, how like my role models in sport hadn't really talked about, like the struggles and things and I think also not just talked about, but like it's often, it's a lot easier to digest, like humor. And so, I think it's often brought up in a way that's like making a joke about, you know? But like, you don't hear about, like the real part of that. Yeah, I was I had a breakdown in my car because it was too much to handle or like those types of stories. And I wish that those would be talked about a little bit more, especially those like leaders and when they feel insecure and whatever on that scale and like coaches and stuff, too.*

*I'm sure you can be a source or like our team sports psychologist or stuff like that, but in terms like my family or friends, it's like I'm sure they'd want to help, but it's like not knowing where to actually go for proper help.*

*But I also haven't taken that stuff because I don't really know how to.*

*Because I think it's like when you have an issue with say your leg or whatever, you go to the hospital. But it's like it's not really the same for your mental health I feel like. You can't just go to the hospital for your mental health.*

*Oh, tough, but also, I don't know, as an athlete, I do well under pressure, so there was kind of like that pressure of kind of trying to get better and try to figure it out. I think that was like the real big push towards that, because it was like, well, if this is actually the thing, we've got to get it fixed.*

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	<i>My friend had suggested a psychologist previously when she had went to one, but I had signed on (to the information website) and there was like three hundred results and only half of them had pictures. And I didn't even know where to begin as to how to select someone. And in her experience, she said too that lots of them she'd had to call like five or six different places because many weren't even taking new clients. So that was extremely overwhelming and it was easier to just not.</i>	4
	<i>Like if there's no psychologist around, you know, like where are they supposed to go? It's another whole thing that you have to look into yourself and try to figure out. And like you said, you don't have time for that. You know, like you've got tons of other stuff to do. I guess it was just the way it was approached to us or delivered to us. Like the topics that they talk about are all sport related, which makes sense. But I never even really considered that for personal reasons.</i>	6
Hiding and Minimizing Mental Health Problems	<i>And I find for me, I kind of pretend it doesn't exist for a while until it builds to a point where I can't take it anymore. And then everything kind of crumbles and I have to reset.</i>	4
	<i>It wasn't – they (mental health symptoms) weren't super bad, but I just didn't feel like motivated, kind of just in a daze almost for a while and then wouldn't have motivation to study, wouldn't have motivation like leave my house. But yeah.</i>	1
	<i>... like just like always trying to be happy and like that person that like brings joy and fun and just like dedication all the time and stuff and motivating others.</i>	7
	<i>Like I didn't feel like not that I didn't feel like I could go to my coach and say, like, I need to practice off because I'm busy. But like he would have said, yeah, sure, no problem. But it felt like I, I still couldn't do that or that I would be like hindering my own success or like disappointing them because I couldn't manage and I should be able to manage. And I take pride in being a student athlete and being able to juggle that. And so then to admit that I couldn't was kind of like a sense of failure, I guess.</i>	4
	<i>I was thinking, like, every student goes through this, like every that's just what being university is about. Like it was, I didn't see myself as struggling, I guess it was just this is what can happen and like, this is normal.</i>	4

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	<i>But yeah, it was almost like I was able to forget about my whatever issues I had. And they felt very slight compared to what she was going through.</i>	4
	<i>... I can generally keep it in for an amount of time. But I feel like at the point where I was at, it kind of was at its worst. I just broke down almost every night.</i>	5
	<i>I guess I didn't realize how busy I was and how thin I had stretched myself until I was crying in my car, with my friend, and couldn't figure out why.</i>	4
	<i>... I don't want to be a nuisance to others. I just don't want to come off as annoying...</i>	5
	<i>I've always been like the gifted child, you know, I've always had good grades. I've always had the good athletics, good daughter, good family kind of thing. So, it was always I think like you literally have nothing to be sad about. So, like, keep it together, honey, you know, so like when I would break down, I'd just be like, oh, like everybody will think that I'm just being like this pathetic kind of weepy attention seeking person.</i>	5
	<i>I think I was kind of like a turtle, just kind of hiding away that first year, trying to minimize myself as much to like. I don't know how to say this, but like trying to not bring attention to the fact that I was struggling to trying to hide myself away and hide my emotions and stuff and like, my coach would come and talk to me, and he'd be like, how are you feeling? I'm like, I'm doing great. I like doing great over here. It's fine. But then I wasn't.</i>	7
<b>Reconciling the Athlete Identity and Mental Health</b> “Taking a step back”	<i>Because at the times where I felt like I wanted to pull away, I kind of knew I couldn't because I had an obligation to be with the team.</i>	5
	<i>This is where the mental health comes in. I've kind of lost my lost my passion a bit and then I'm more kind of driven on school knowing, especially since right now women can't really get as far in terms of funding... and my academics became a huge part of it. And I feel like right now I'd rather focus on my academics and I have a goal with that. So not saying I don't entirely not love [my sport], but I feel like my priorities have just kind of changed.</i>	5
	<i>I don't know, maybe just having more time, I guess there's a bit more flexibility now and like in schooling and in my workout so I can shift my day around or my week around a bit more, I guess. Just having- because there's nothing like there's nowhere for you to go. No</i>	3

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	<i>like no set schedules really for anything. That has allowed me to change that mindset, I guess.</i>	
	<i>...usually like being able to step back and take a deep breath kind of helps me.</i>	1
Acknowledgment of Mental Health Problems	<i>But I think a lot of it has to do with just speaking it out loud so that it makes it real.</i>	4
	<i>It's a lot easier for me to help someone else than to help myself.</i>	4
	<i>It definitely took me a while to realize what was going on. It definitely took me a lot longer than I think it should have.</i>	2
	<i>Instead of kind of like brushing it under the rug, putting on a happy face, letting myself be upset and angry, whatever it is. Yeah, I usually try to do it in an appropriate time. So, if I'm upset at practice, I'll go home and then I'll be upset. And then I'll like once I feel the emotion, then I'll kind of get out of it.</i>	1
	<i>So, and she was she she was very supportive, she was like she started crying with me and then my sister started crying with me as well. But I did it because I didn't want to worry them. I didn't want to hide. I didn't want to hide, you know who I am with them. So, I remember after talking with them about feelings and emotions and the difficulties, they start doing the same with me. It was actually good because we we open 100% with each other and like it strength the relationships. (Right) yeah, so I noticed that it was a good thing, even though we were feeling bad or whatever, it helps you to strengthen these relationships.</i>	6
	<i>Exactly because it's like a dual thing, because on one hand, you have this stereotype or like a cultural stereotype on your hand, but on the other hand, you're experiencing it and you think that it's a good thing to talk about. So, they are going in different ways. And so you have to take the risk and that's something that, as you said, as an athlete and because the person that I am, I am always taking risks. So I think that's what that's what that's why I decide to talk with them and to, you know, seek for the psychologist, for example, or to move to Canada, because I am always taking risks no matter what. And that's an athlete mentality that I will say. I'm always willing to take the risk no matter what, because you're thinking of the positive impact after that.</i>	6

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- I believe that most athletes after a certain time and after suffering many injuries, we become very resilient and we kind of overcome these difficulties with a little bit of easier than many other people, let's say, because you get used to it, you're not used to it, but somehow your mind, your body, get used to these injuries.* 6
- I feel like when I was at my low point, they kind of just like were there to help me through it, kind of. And it kind of taught me that it doesn't matter where you're at your lows, you can always overcome it. And what you do to overcome it makes you stronger.* 5
- ... recently in a sense, where I've been more open to getting help, like actual help because I've been dealing with this for god knows how many years, and it's just like I'm just sick of it and I just want to get rid of it. So, I feel like that's also where I've been so open.* 5
- That's the thing. It's like I don't know, because I'm saying, like address situation, but I don't know how I would go about that, because what I've been doing for it, like talking to people, maybe I could have started that earlier. But at the time, I feel like it wasn't that big of an issue.* 5
- Once you acknowledge that you're not OK, that makes such a big difference because keeping and bottling things in such a bad thing is so detrimental and it just makes things worse. So, I guess I that just being aware and being open and just knowing that it's OK to not be OK.* 5
- I had a mental breakdown, basically, and it was it was very tough. My grades were slipping, [my sport] wasn't going well... And I had never, ever in my life had that. And I just absolutely broke down to one of my best friends. And I was just like sitting there crying. And I was like. I've never felt worse, but I've never felt better at the same time because I finally, like, allowed myself to break down, but I also felt so guilty for breaking down. And then I kind of realized that there was something like kind of healing about it where I was like, you've broken down, it's over. Now what are we going to do about it? And there was like a new starting point, like a new set point to it. So, yeah, I still get uncomfortable when people see me cry, but it's more of a thing where I'm like, no, you need this like you need this right now. And this is OK for you to need at this certain point in time.* 7
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*If I'm having a bad day or if I've had a bad day for several days in a row where I just don't feel like getting out of bed, I come to [my sport] and I'm just like, "Hi guys! How's it going?" You know, and I've always been really good at that. But I wished I kind of let myself kind of be like, no, it's kind of a bad day today, but doesn't mean you need to bring the room down, but it doesn't mean you have to be that super cheery, always trying to get people up kind of person.* 7

*Um. I guess sometimes, it probably would be easier talking about it out loud to someone, I guess, instead of just everything in my head always. But. I don't know, I feel like I haven't had like negative impacts of it, I guess, I don't know. I feel like I haven't gotten to anything that I haven't been able to overcome myself, so...* 3

*I just didn't want to make any mistakes. And I feel like that was pretty detrimental to my mental health because I'm a perfectionist. But I know it's OK to make mistakes, which is weird because if I'm like that, but I'm acknowledging that it's OK to be like that, but I'm not actually doing what I'm saying.* 5

*I miss that set. It's no big deal. Your body's probably hurting from the last workout you did. It's not a big deal or something like that. So just kind of being a little kinder towards myself and then not putting as much pressure on myself. So, it's definitely just helped me for sure.* 7

*Yeah, it was. I'm again, and maybe that was on me for not reaching out to anyone in the sport specifically, but definitely that was something that yeah. This is my thing outside of the sport. Like it wasn't, it was kind of related to the sport, but it felt more personal than in the sport. So. Which, looking back and talking to you now, probably had more to do with it (the sport) than I let myself believe, but yeah, yeah, it was very easy for me to separate the two, I think.* 4

*I have a ski pass now. So, like once I'm done for finals, I can go and enjoy that. And I feel like that'll help my mental health because it's something I enjoy.* 5

*Exercising, trying to get outside.* 1

*Like, so the injury was out of my control, like I was unable to do lots of the exercises and things, so that was something I had to, like, become OK with and not beat myself up because it was something that I couldn't* 4

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	<i>like. I was doing everything that I could. And resting was the best thing for it. And that was something. Whereas I, I draw a parallel to the pandemic like it's something that's out of my control. I don't have the option to be at gyms, whatever. It's OK if things aren't exactly how I left them or it's OK if I'm not getting better while I'm stuck at home.</i>	
Conflicted about Moving Forward with Mental Health	<i>... it could be from a me being involved with, like high competitive sports from such a young age, because I feel like that instilled a lot of good habits within me in a sense where I am so driven and I just want to do the best or the best of what I do. But like I said, it's tough because I am the way I am, but I'm acknowledging that it's OK to not be OK. And I know that, but it's hard for me to accept that within myself.</i>	5
	<i>... it's kind of the same situation where it's like when I'm talking with my friends, it's like we're in a practice, but it's like when I'm dealing with it myself, it's like I'm in a game.</i>	5
	<i>... if something's happening, then I know, like, I should address it sooner rather than later because it'll just build up and just get worse. So, it was definitely a huge aspect, that I learned.</i>	5
	<i>Yeah, because with my youth club we never really had so many mental health talks. But then coming to university like we did, like it was such a big thing to do because we would have like our team sessions, our video session, our sports nutrition sessions, our sports psychology sessions, and like our team sports psychologist, all three, technically, they have a session with us every week. And I feel like that helps a lot. So, yeah.</i>	5
	<i>I feel much more insecurity about it surrounding [my sport]. Like about my performance specifically. Like I can model different things, like more emotional, psychological, things like that and like talking through things and whatever, but I feel like because my performance doesn't match where I expect it to be, I feel like I have less (of a right to do so). It's more of like an insecurity, I would say.</i>	4
	<i>It was good because then I was able to accept it more. Yeah, yeah, because I feel like once you talk about it more, you're more willing to talk about yourself, you know</i>	5

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- I feel like I just didn't want people to know (when I'm struggling emotionally) almost. Not so much of what would happen, but just not wanting everyone to know. Kind of wanting people to think of me as like a strong person still.* 1
- ... being understanding of the situation, being there for an athlete if they need it or if they feel comfortable, and then also providing resources and knowing about the resources to give athletes.* 1
- ... coaches need to know that you need to reach out to your athletes a lot more than you do, coaches definitely need to text their athletes. Like I want to say like not once a day, but like at least a few times a week. Reach out. How are you doing? Are you ready for the workout today? Like, do you need anything? You want me to bring anything to the workout? Like just know that they're there so you can build the ground from the start. Because I think that that that bond between a coach and an athlete is so significant regardless of the sport and especially in [my sport], because the athlete is trusting that coach to make them the best.* 2
- I feel like just being approachable. Like letting your athletes know that it's like a judgment free zone, like they're there for you and for your well-being as opposed to just the sport.* 1
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## **Chapter 4: General Discussion**

This thesis builds upon the growing literature base surrounding athlete mental health. With a focus on student-athletes, this thesis provided a quantitative assessment of the scope and severity of a range of symptoms of mental health problems among student-athletes and examined factors that were related to symptoms of mental health problems (e.g., mental health literacy). Further, this thesis qualitatively explored student-athlete mental health and the impact of the competitive sport context on their understanding, expression, and management of mental health problems. This thesis also provided a quantitative and qualitative understanding of the impact of the COVID-19 pandemic on student-athletes' mental health. The existing literature base suggests that student-athletes experience symptoms of mental health problems at heightened rates compared to university students and adults in general. This dissertation added to the existing literature by providing an assessment of a broad range of symptoms of mental health problems among a sample of Canadian student-athletes and is one of the first studies to my knowledge to both quantitatively and qualitatively examine the impact of the COVID-19 pandemic on Canadian student-athletes' mental health. Finally, this study is one of the few studies to qualitatively explore Canadian student-athletes' mental health experiences. This approach allowed athletes to provide context regarding their mental health and provide recommendations from an athletes' perspective about how to continue to address mental health in sport.

### **Summary of Main Findings**

To briefly summarize, athletes in this dissertation reported comparable or heightened rates of mental health symptoms compared to university students in general, though a direct comparison cannot be made due to the use of different measures. Notably, I found that nearly half of the sample exceeded the clinical cut-off on more or more of the mental health measures.

Further, approximately half of the student-athletes who were sampled reported clinically significant distress, anxiety, and depression and nearly 40% of participants exceeded the clinical cut-off on the PCL-5, indicative of probable PTSD. Findings from Study 2 further described student-athletes' mental health and revealed that athletes are likely experiencing a range of mental health symptoms at varying levels of severity, but struggle to acknowledge and address these symptoms due to gaps in knowledge, evident across both studies, lack of mental health supports, and prevalent stigma related to mental health and psychological help-seeking.

Qualitative findings also highlighted the complex interplay between the athlete identity and the Sport Ethic as athletes tried to navigate and make meaning of their mental health challenges in a competitive sport context. Finally, findings from both studies explored the impact of the COVID-19 pandemic on student-athletes' mental health. Overall, while athletes in both studies reported distress related to the pandemic, they described positive coping strategies and even some benefits related to their mental health. These findings suggest that ongoing consideration of athletes' overall well-being from a holistic perspective, beyond their sport performance and athlete identities, is warranted. Implications regarding the assessment and treatment of mental health problems and mental health literacy in sport are discussed in the sections below.

## **Integration of Findings from Studies 1 and 2**

### ***Symptoms of Mental Health Problems***

Findings from this dissertation emphasize the impact of mental health problems among student-athletes, a group traditionally thought to be at low risk for the development of mental health problems (Reardon & Factor, 2010). Findings from Study 1 suggest that student-athletes experience symptoms associated with a range of mental health problems including depression, anxiety, PTSD, disordered eating, distress, and alcohol use at comparable and possibly higher

rates than have been observed in the general population and with similar symptomatology.

Findings from Study 2 further emphasized the impact of a range of mental health problems on student-athletes that athletes themselves struggled to acknowledge. The impact of mental health problems and the challenges that athletes faced when they tried to understand and address their mental health difficulties in a competitive sport environment were described in the main theme from Study 2, “The Struggles with Struggling: Making Sense of Mental Health Problems”. The fact that athletes face unique challenges to their mental health was also evident in Study 1.

Findings from the open-ended questions in Study 1 highlighted the unique factors that athletes encountered during the COVID-19 pandemic that were described in the main theme “Navigating Uncertainty” (e.g., increased anxiety due to worry about losing their athletic ability and funding, isolation from their sport support network, mental load of adapting their training routine, and disruption to their regular routine).

Despite these heightened rates of mental health symptoms, findings from this dissertation reflect other research that has found that athletes show significant adaptability and fortitude when managing mental health challenges and may continue to function at high levels (Pankow et al., 2021; Van Slingerland et al., 2018; Van Slingerland et al., 2019). Athletes in Study 2 reported long histories of overcoming challenges, sacrificing for their sport, and persevering towards their goals that were outlined in several of the main themes including “The Athlete Identity” and “Shaping Identity”. Further, the sub-theme “Resilience and Flexibility” (Study 1) described how athletes were able to adapt to the distress and uncertainty related to COVID-19. Many athletes in the current dissertation described how sport itself was a helpful outlet for them in times of stress, as participant four expressed:

And it's a lot of fun. It keeps me active. It's something outside of academics that I can put goals on and work hard to achieve, and especially gym related goals and things, too. And also, it's a great outlet from school.

Athletes applied these coping strategies that they learned through sport to their mental health challenges. In Study 2, participants described intense focus towards addressing what they assumed were performance challenges (e.g., “Tunnel Vision” and “Sport as the Problem and the Solution: Sport as Coping”) and trying to conceal their mental health challenges (e.g., “Minimizing and Hiding Mental Health Problems”). This belief that athletes should address their mental health difficulties on their own and continue to push forward through setbacks and challenges was rooted in their athlete identity, as participant seven (Study 2) described, “... as an athlete, I do well under pressure, so there was kind of like that pressure of kind of trying to get better and try to figure it out.” Participant one elaborated on how her experiences overcoming challenges in sport were a source of pride and have motivated her to continue to push on in her sport, even if it compromised her mental health:

... but seeing how mentally strong I am to be able to be put through all these situations and circumstances and how if I can do this, then why shouldn't I be able to continue it? So, it kind of pushes me to just continue and see how far I can go.

While these tendencies to further invest in sport and manage challenges independently were familiar and sometimes effective for student-athletes, they acknowledged that this investment and focus toward their sport involvement was at the expense of their mental health. This tendency to overly invest in sport has been observed in other studies with athletes and further complicates the identification of mental health problems among this population (Doherty et al., 2016; Reardon et al., 2019). Athletes described tensions between investing in their sport

and upholding their identity as an athlete and trying to shift their focus to their mental health. Findings from Study 2 highlighted this complex process for athletes. Even once they personally acknowledged their emotional challenges, they faced internal pressures and external barriers to addressing these concerns. Findings from both studies emphasized the internal pressures that athletes felt when they experienced disruptions to their athlete identity. For instance, qualitative findings from Study 1 highlighted the participants' significant anxiety about stepping away from sport due to the COVID-19 pandemic and losing their athletic ability ("Navigating Uncertainty"). Participant five from Study 2 elaborated on these internal pressures to maintain ones athletic status and abilities that made stepping away from sport challenging:

... because I mean like if I take a step back, then it's kind of like... Not putting yourself at a disadvantage, but it's like you're kind of just like letting others into your possession, which I don't know if that sounds shitty or not, but (No) because it is like don't get me wrong. I love my teammates and I'm happy for opportunities that they have as well. I'm supportive to that, but it's. You're trying to work towards, like yourself getting to that position, so especially with a goal, like there's only one spot, right?

In addition to the internal pressures that athletes felt to main their sense of self-worth as an athlete when they faced mental health challenges, they noted that the sport structure and system posed additional barriers to addressing their mental health concerns (e.g., lack of time, lack of resources, stigma). In the sub-themes, "Hiding and Minimizing Mental Health Problems" and "Sport Messaging: Missing Mental Health Information" (Study 2), athletes described how these structural barriers further discouraged them from addressing their mental health and reinforced their beliefs that they should keep their mental health concerns private. Overall, these findings add to previous research that highlighted the unique considerations for athletes' mental health

(Kuettel & Larsen, 2020; Reardon et al., 2019; Van Slingerland et al., 2019). My findings suggests that the way that mental health is addressed in sport in terms of assessment, intervention, and prevention needs to change to meet athletes' mental health needs (Henriksen et al., 2020; Kuettel & Larsen, 2020; Van Slingerland et al., 2019).

**Assessment of Mental Health Problems in Sport.** Findings from studies 1 and 2 emphasize that there are unique considerations for assessing mental health symptoms among competitive athletes, as they may be underreported or difficult to detect. For instance, in Study 2, athletes reported that they often concealed their mental health problems from others and downplayed the severity of their distress (“Hiding and Minimizing Mental Health Problems”). While athletes in Study 1 reported heightened symptoms of mental health problems, it is possible that these may be underestimates of the true prevalence of mental health symptoms among this population due to athletes' tendency to minimize, underreport, and conceal their symptoms (Van Slingerland et al., 2019). In addition to being difficult to detect, results from this dissertation highlight the limitations in using single methods (i.e., self-report) for assessing mental health problems. In the current dissertation, while the quantitative data was helpful in providing an initial description of student-athletes' mental health symptoms, qualitative findings helped to provide important context and nuance. For instance, while quantitative data did not reveal a significant difference in mental health symptoms during COVID-19, qualitative data from studies 1 and 2 revealed that athletes struggled in some ways (e.g., “Navigating Uncertainty”, Study 1 and “Navigating Disruptions to the Athlete Identity”, Study 2) but thrived in others (e.g., “Unforeseen Benefits”, Study 1) during the pandemic. Additionally, findings from Study 2 suggested that greater specificity is needed when assessing athletes' mental health problems

(e.g., some participants endorsed symptoms related to obsessive compulsive, adjustment disorders, and mixed anxiety and depressive disorders).

Taken together, findings from both studies point to the importance of using multiple methods of collecting information about athletes' mental health (e.g., self-report measures, clinical interviews (i.e., CAPS-5; Cheng et al., 2021; Diagnostic Assessment Research Tool (DART) measures; McCabe et al., 2017). The nuance associated with assessing mental health problems in sport has been highlighted by other researchers who emphasized the importance of utilizing diverse methods to understand athletes' mental health experiences (Kuettel & Larsen, 2020). These assessment tools should be administered and interpreted by a certified professional with training in assessment and treatment of mental health problems (i.e., a psychologist; Tomalski, 2019). The use of clinical interviewing in addition to self-report measures would allow for clinicians to understand athletes' mental health symptoms with greater specificity and in relation to their sport context (e.g., understand course and frequency of symptoms as they relate to sport-specific demands, discern whether concerning behaviours are reflective of appropriate sport training or mental health problems; Reardon et al., 2019). Overall, results in this dissertation highlighted that mental health is complex and understanding the context and lived experiences of individuals is important when evaluating mental health symptoms in sport (Henriksen et al., 2020; Kuettel & Larsen, 2020).

It is important to note from a process perspective that athletes who participated in both studies were relatively forthcoming about their mental health symptoms and experiences. That is to say that athletes may be willing to discuss their mental health if they are asked in an environment that they feel is supportive of their mental health, where they will not be judged or penalized (Van Slingerland et al., 2019). Currently, a challenge in sport is that athletes are not

being asked about their mental health in the first place. If they are, it is unclear or possibly not yet established who is responsible for their mental health or if they will be treated negatively if they respond honestly (Henriksen et al., 2020; Van Slingerland et al., 2019). Further, most sporting organizations do not have a qualified mental health professional (i.e., a psychologist) employed full-time as a part of the athlete support team, which makes discussing, identifying, and addressing mental health problems challenging (Henriksen et al., 2020; Wrisberg et al., 2016). Issues around confidentiality, sharing of information, how information will be utilized once it is obtained, and when follow-up is warranted are important to be transparent about with athletes as services related to mental health are implemented (Bird et al., 2018; Henriksen et al., 2020; Tomalski, 2019). Moreover, athletes in Study 2 spoke about the benefits of having a mental health professional integrated into their support team and how this facilitated their willingness to seek support. While they initially spoke to the professional about a performance related issue, this initial contact opened the door for discussion of their overall mental health, which they found beneficial. These findings emphasize the importance of integrating psychological services within the sporting domain so that athletes can build a trusting relationship with that professional and feel confident in the practitioner's understanding of their sporting demands, which has been found to encourage help-seeking (Bird et al., 2018; Kuettel & Larsen, 2020; Van Slingerland et al., 2019).

**The Complexities of Addressing Mental Health in Sport.** Findings from both studies highlighted the complexities associated with elite sport involvement and navigating mental health challenges. Athletes described a constant tension with upholding their sense of self-worth and identity as an athlete; they enjoyed and valued the structure and character building that sport provided them with but also felt overwhelmed and limited by the sacrifice and intensity that their

sport demanded of them. A quote from participant seven (Study 2) emphasizes this dynamic: “So, it's definitely something where it can really help you, but it can also just like kind of destroy you very quickly. So, I've definitely felt the highs and lows of the game”. Findings from both studies highlight that sport involvement is not inherently harmful or negative, but rather, athletes are struggling to find a balance between their sense of self as an athlete and a whole person. Athletes described these tensions in the main themes in Study 2, “The Struggles with Struggling: Making Sense of Mental Health Problems” and “Reconciling the Athlete Identity and Mental Health”. In the sub-theme “Conflicted About Moving Forward with Mental Health”, athletes expressed that they were unsure about how to move forward with their mental health. On one hand, they recognized the benefits of being more open about their mental health and seeking support. However, at the same time, they were reluctant to fully integrate this experience into their sense of self as an athlete, acknowledge that they needed help, and take steps towards seeking help. Moving forward in sport, helping athletes to find a better balance between sport engagement, recovery, and exploring other aspects of their identity while also de-emphasizing the importance of perfect performance and winning at all costs would be beneficial (Henriksen et al., 2020).

It is important to note that findings from both studies underscore the positive aspects of sport involvement. This was particularly evident during the COVID-19 pandemic, where athletes in this study and others (Strauser et al., 2023), showed positive coping in response to challenges. It is important to note that the failure to observe significant differences in athletes' mental health symptoms may have been related to the small sample size that was obtained for T3. Nonetheless, findings from Study 1 showed that athletes maintained relatively stable or possibly improving mental health symptoms during the COVID-19 pandemic and qualitative themes, “Adapting to

Changes” and “Unforeseen Benefits”, elaborated on how athletes maintained relatively stable mental health during this difficult time. Many of the participants in both studies attributed their adaptability during the pandemic to their sport involvement, which has included a long history of facing adversity, overcoming challenges, and staying persistent in pursuit of their goals that was described in the theme “Shaping Identity” (Study 2). That is to say that athletes are certainly capable and have developed numerous healthful ways of managing adversity by way of their sport involvement, and other researchers have highlighted these strengths among student-athletes (Pankow et al., 2021) However, the sporting system at large may not support athletes in coping with emotional challenges effectively and optimizing these characteristics and skills that they have developed (e.g., encouraging athletes to train through pain, win at all costs, sacrifice for the sport, etc.; Henriksen et al., 2020). These systemic barriers appear to be particularly relevant for mental health, where athletes reported that there was a lack of openness, information, and resources. As previously stated, the sporting system at large needs to change in order to assist athletes with moving through challenges in healthful ways and incorporating mental health supports into the sporting environment that athletes can utilize to address and prevent the development of mental health problems (Henriksen et al., 2020; Van Slingerland et al., 2019).

### ***Mental Health Literacy***

Overall, findings from studies 1 and 2 indicated that athletes demonstrated relatively low mental health literacy. In Study 1, athletes reported low to moderate rates of mental health literacy assessed by the Brief Mental Health Literacy Scale (Reynolds et al., in preparation). Themes from Study 2, “Sport Messaging: Missing Mental Health Information” and “Hiding and Minimizing Mental Health Problems”, reflected athletes’ difficulties recognizing, understanding, and seeking help for their mental health problems when they arose. They noted that they had

adequate support for performance related concerns but felt unclear and uncertain about how to navigate problems with their mental health. Participant four elaborated on the gaps in mental health messaging related to mental health in the following quote:

I guess it was just the way it was approached to us or delivered to us. Like the topics that they talk about are all sport related, which makes sense. But I never even really considered that for personal (mental health) reasons.

Findings from this dissertation are consistent with the existing literature that suggests that there are gaps in mental health literacy among elite athletes at an individual and systemic level (Castaldelli-Maia et al., 2019).

One possibility that may account for the relatively low levels of mental health literacy that were observed across both studies is the presence of stigma related to mental health in sport. Certainly, mental health stigma in sport has been previously cited in the literature as a barrier to addressing mental health (Castaldelli-Maia et al., 2019). Other researchers have explored the impact of mental health stigma in sport and found that athletes show higher rates of self-stigma and perceived other stigma compared to non-athletes (Kaier et al., 2015). Though I did not directly measure stigma, athletes in the qualitative study described a sense of self-stigma related to their experiences of mental health problems in the main theme “The Struggles with Struggling: Making Sense of Mental Health Problems” (e.g., feeling inadequate, like a failure, and reluctant to identify with mental health problems). However, they indicated that they would not negatively judge someone else who was struggling with their mental health. While it is possible that athletes felt generally supportive of others experiencing mental health problems, they may be reluctant to acknowledge and hold negative attitudes about their own mental health problems.

Stigma about mental health symptoms, whether self or public stigma, may prevent athletes from recognizing mental health symptoms when they arise and be an additional barrier to seeking appropriate support (Vogel et al., 2007). Indeed, mental health stigma can impact athletes' mental health experiences in multiple ways. As previously stated in Chapter 1, stigma regarding mental health problems and mental health help-seeking are separate but related constructs (Tucker et al., 2013). Stigma regarding mental health can be further delineated as self-stigma (internalized negative feelings about our own mental health problems), public stigma, which can encompass perceptions about others with mental health problems and how we feel others perceive individuals with mental health problems, and systemic stigma (structural laws, regulations, and policies; National Academies of Sciences, Engineering, and Medicine, 2017; Mackenzie et al., 2022). In addition to holding negative self-perceptions about mental health problems, athletes in Study 2 described elements of systemic stigma whereby their sporting environment would not enable them address mental health problems effectively due to lack of mental health support, perceived stigma, and demanding schedules. Participant five described how she grappled with perceived public stigma related to mental health:

I've always been like the gifted child, you know, I've always had good grades. I've always had the good athletics, good daughter, good family kind of thing. So, it was always I think like you literally have nothing to be sad about. So, like, keep it together, honey, you know, so like when I would break down, I'd just be like, oh, like everybody will think that I'm just being like this pathetic kind of weepy attention seeking person.

It is interesting to note that some athletes noted that they were more willing to approach a mental health professional for a performance related issue than a mental health issue, as participant two from Study 2 expressed:

And the reason I went to my sports psychologist when my performance was struggling was because I knew that was purely about just me being a paranoid freak, almost like I knew the issue going into it. Like she wasn't the one who identified the issue for me. I told her my issue so she could help me with it. So that's kind of why I went there, because I knew what was going wrong there. I didn't know really what was going wrong in my high school years (when I was struggling emotionally).

As this participant alluded to, the seemingly ambiguous nature of mental health problems, likely due to gaps in knowledge about mental health and mental health treatment in sport, combined with the stigma associated with mental health and help-seeking may make it especially challenging for athletes to seek help. This reluctance to pursue individual mental health support that athletes in Study 2 described is consistent with research conducted among athletes (Gulliver et al., 2012) and sport organizations (Wrisberg et al., 2012). For instance, athletes described hesitancy about seeking mental health support due to lack of knowledge about the therapy process (Bird et al., 2018). Further, in one study conducted among college athletic departments, most sport administrators were not comfortable with a psychology professional addressing concerns beyond performance with their athletes (Wrisberg et al., 2012). My findings combined with the larger literature base regarding mental health in sport (e.g., Gulliver et al., 2012; Kaier et al., 2015, Wrisberg et al., 2012) suggest that stigma is likely prevalent at various levels in sport. Gaining a more comprehensive understanding of the varying dimensions of mental health stigma and stigma about mental health help seeking and their relationship to mental health literacy in sport would be an important avenue for future research given its impact on athletes' mental health and mental health help-seeking.

Despite the stigma surrounding mental health that continues to be prominent in sport that all athletes alluded to, participants expressed a desire for increased openness and attention for mental health in sport. However, as previously discussed, athletes described a lack of understanding and knowledge about mental health problems and how to address them. Further, they expressed that they felt limited in terms of how to address their mental health problems due to demanding schedules and lack of available resources within their sport in addition to a perceived expectation that they should be able to cope with the various demands of sport, as participant four described:

Yeah. Like I guess there's a lot of stuff on the Internet and not necessarily with people I know, but that's just kind of like the overall perception of what school is supposed to be like. It's supposed to be super hard... And people pull all nighters all the time for getting their work done. And yeah, eating habits change like that or whatever. Like it's kind of just expected. and I guess I always had like the end idea, like when the semester is done then I'll start working and then everything will go back to normal and everything will be fine. And I just need to push through this piece and then everything will be OK.

On the other hand, athletes who had mental health supports built into their training environments were much more likely to use them than those who did not. For instance, participant six expressed that seeing the psychology professional regularly encouraged her to ask for help:

Because I remember the why I decided to talk with the psychologist was because I saw him on the field all the time. Yeah. So, he became more familiar to me. And then after a while I was like, OK, this guy is there all the time for something. I should talk with him.

This is consistent with other research conducted among athletes who have emphasized the importance of a trusting provider-patient relationship and providers having adequate sport knowledge as facilitators to help-seeking (Bird et al., 2018). Further, despite prominent stigma related to mental health, athletes in Study 2 indicated that they were open and interested in receiving more information about mental health. Additionally, many athletes in Study 1 noted that they were focusing on their mental health during the COVID-19 pandemic, when their sporting demands had decreased. Taken together, there was some evidence from this dissertation that athletes may be increasingly open to the impact of mental health on their well-being and performance and may be willing to invest in their mental health if they have a supportive sporting environment with adequate resources and time to devote to their mental health. Findings from this dissertation suggest that further research is needed to gain increased understanding about the relationship between mental health, stigma (self and public stigma, stigma about mental health and mental health help-seeking), and mental health literacy in sport. Implications regarding interventions aimed at improving mental health literacy in sport will be discussed in a later section.

### ***Impact of COVID-19 on Student-Athlete Mental Health***

When faced with disruptions to their sport involvement, such as the COVID-19 pandemic, findings from both studies underscored athletes' urgency to continue their engagement in their sport, maintain their level of training, and continue to improve their performance due to fear of losing their athletic ability, missing out on all that sport had to offer them, and ultimately, disconnecting from their sense of self as an athlete. These tendencies were described in themes "Navigating Uncertainty" (Study 1) and "Tunnel Vision" (Study 2). However, participants in both studies also expressed that the current demands of their sport and

the coping strategies that they were relying on were ultimately not conducive to mental wellness in the long run. Disruptions (i.e., the COVID-19 pandemic) to athletes' demanding schedules, though distressing, provided athletes with opportunities to rest and reconnect with other aspects of their lives and identities that were important and rejuvenating to them (e.g., family, personal hobbies, physical activity beyond sport training, and mental wellness practices). It is possible that the disruption related to the COVID-19 pandemic or other factors (e.g., injuries) may have created the space for athletes to acknowledge and recognize their mental health struggles and the impact of them which prompted them to take action towards addressing them.

It is also likely that disruptions to athletes' regular sporting demands, due to the COVID-19 pandemic, performance, or injuries, allowed athletes to gain new perspective about their investment in sport. In the sub-theme "Taking a Step Back" (Study 2), all athletes expressed that disruptions allowed them to re-evaluate their outlook and behaviour and pivot to take a more healthful approach to their sport training. This process involved gaining new awareness and perspective about their investment in their sport. Findings from both studies suggest that giving athletes opportunities to have a temporary break from their sport demands may be beneficial for their mental health, and possibly performance (Kuettel & Larsen, 2020; Pankow et al., 2021). They noted that these disruptions were opportunities to focus on rest and recovery, address their mental health more directly (Study 1), consider other important aspects of their sport training, and find a better balance between sport performance and mental health (Study 2). Further evidence was provided by the quantitative results from study 1 which indicated slight improvements in some mental health symptoms following the COVID-19 pandemic. These findings support other recent recommendations to take a holistic and whole person approach to addressing mental health in sport (Henriksen et al., 2020). While athletes enjoy and value their

sport involvement, there was evidence across both studies that a better balance is needed in order to optimize athletes' overall well-being.

### **Conceptualizing Findings with Theory**

**The Sport Ethic.** Findings from the qualitative study align with the theoretical model, The Sport Ethic, and provide further context for the development and maintenance of the athlete identity. Similar to Hughes and Coakley's conceptualization, athletes in my study described a set of socially constructed standards and expectations that they were acutely aware of that served as a constant point of reference for their sense of self as an athlete. Athletes in my study described similar characteristics as Hughes and Coakley (1991) including being persistent, maintaining and striving for optimal performance, making sacrifices for their sport, and being self-sufficient and tough in the face of adversity. Athletes in my study emphasized the importance of maintaining their sense of identity as an athlete when they experienced disruptions to their sport involvement and worked hard to uphold these standards. These expectations that athletes felt made it challenging for them to recognize and seek appropriate support when they experienced a mental health challenge, which felt incongruent with the standards that they had internalized, and instead attributed their difficulties to failure to meet their sporting demands or personal weaknesses. Tensions surrounding participants' ability to maintain their athlete identity were also evident in their responses about the impact of the COVID-19 pandemic. Indeed, the inability to compete and train at an optimal level was top of mind for athletes and fears about losing their athletic ability and connection with their sport community caused them significant distress.

Findings from my study are additive to the theoretical model, the Sport Ethic, as further context surrounding experiences that develop and maintain the athlete identity and the Sport Ethic, a set of unwritten rules and expectations that athletes should uphold (Hughes & Coakley,

1991) were generated through participants' responses. Hughes and Coakley (1991) posited that athletes had received messages throughout their entire sporting involvement about the expectations and rules of engagement for athletes. However, they did not specify the types of experiences or messages that may be most relevant in terms of athletes' internalizing these expectations and standards. Based on participants' responses, I generated a main theme, Shaping Identity, that described the historical and ongoing experiences that contributed to the development and maintenance of athlete's identities. Participants described recognition of their athletic potential by others as a factor that contributed to the development of their identity as an athlete. Many participants described being recognized early in their sporting careers by scouts, coaches, or mentors who saw that their athletic abilities were notable and unique. This recognition was extremely important to athletes and something that they sought throughout their sporting career. Competition and showcasing their athletic abilities offered them opportunities to gain this recognition and realize the potential that others saw in them, which was in part, why attaining and maintaining optimal performance was so important to them. On the other hand, performance decline was detrimental to athletes' wellbeing as it interfered with them receiving the recognition for their dedication to and sacrifice for their sport. Athletes' were highly sensitive to changes in their performance and concerned about others noticing if they were performing below expected standards. As such, athletes worked hard to maintain optimal performance, were highly distressed when they experienced a performance decline, and urgently invested time and energy into their sport to get their performance back on track. This emphasis on performance that athletes felt was often a barrier to them recognizing when other aspects of their well-being were in need of attention, such as their mental health.

Sacrifice was another experience that was notable for the development of the athlete identity. Sacrifice was both an ongoing practice to developing the athlete identity and an expectation for maintaining their sense of self and identity as an athlete. Participants described a long history of sacrifice related to their sport involvement and reflected about how sacrifice continued to motivate them to continue their involvement in sport. Sacrifice was a source of pride for athletes but also created additional pressure for athletes to see their sport involvement through, reach their optimal potential, and prove that their sacrifice was worth it in the long run. Participants also described sacrifice as being an ongoing expectation of an elite athlete. They expressed that this expectation to sacrifice made it challenging for them to take time to rest or take time away from sport, especially when they were suffering emotionally. They described a belief that the difficulty and suffering was a part of the process that everyone was going through and made them a true athlete.

My study specifically adds to the theoretical model, The Sport Ethic, from a mental health perspective. Though aspects of mental health were not outlined in the initial model, as athletes in my study described, experiencing mental health difficulties within the sport context called into question athletes' sense of identity and self-worth. Indeed, experiencing mental health challenges seemed to go against the standards and expectations of the Sport Ethic. The model was initially developed as an attempt to conceptualize deviant behaviour in sport (e.g., cheating, doping). Hughes and Coakley (1991) proposed that deviant behaviour was not due to rejection or disregard of the code of conduct that athletes understood, the Sport Ethic, but rather an *over commitment* to the expectations and standards of athletes. My findings add to this model by providing context around the difficulties that mental health challenges posed for athletes' identities and how they navigated these challenges in relation to the Sport Ethic. Athletes

struggled with acknowledging their mental health struggles in the first place and instead attributed their difficulties to performance declines, personal weaknesses, or a failure to meet expectations. Indeed, it was challenging for athletes to understand mental health challenges within their understanding of what it meant to be an athlete. Interestingly, most athletes failed to recognize challenges in their mental health until they noticed that their performance was impacted. Because attaining and maintaining optimal performance was top of mind for athletes, this disruption to performance prompted athletes to recognize that something was not right with themselves. However, rather than taking steps to improve their mental health, they often coped by attempting to address their (seemingly) declining performance. To manage mental health challenges and maintain their sense of identity, athletes engaged in behaviour that reflected an overcommitment to the unwritten rules of sport conduct, similar to those that were specified by Hughes and Coakley (1991), that would ultimately improve their performance (e.g., increased training volume and intensity, extensive research into performance enhancement and recovery strategies). Indeed, athletes' attempts to manage mental health symptoms were more reflective of a commitment to their sport and identity as an athlete rather than a rejection or disregard for them. This sense of tunnel vision, or a sole focus on their sport and performance, was described by participants and was reminiscent of an overcommitment to the Sport Ethic that was described by Hughes and Coakley (1991). Athletes expressed that the way out of this cycle of further investing in their sport was to have a shift in perspective, often prompted by being removed from their sport involvement in some way (i.e., due to injury, decreasing training load, losing a starting position). This perspective shift allowed participants to acknowledge mental health problems rather than attribute them to a decline in their performance or a personal weakness. Though this acknowledgement was helpful, athletes continued to describe difficulty taking steps

to address their mental health problems. This was in part due to systemic issues and stigma regarding availability, opportunity, and resources for mental health as well as discomfort with accepting their difficulties with their mental health. Indeed, athletes described struggling with the idea of having a mental health problem and they often continued to minimize their struggles, as they did not seem to fit with the Sport Ethic and their sense of self as an athlete.

Athletes described a similar shift in perspective related to the COVID-19 pandemic, which forced athletes to break away from their highly structured and scheduled routines. This disruption was challenging for athletes, as participants in both studies described. However, it provided them with an opportunity to consider their sense of self more broadly, beyond sport, and prioritize their wellbeing (e.g., “Taking a Step Back”, Study 2), which was also beneficial for them, as one participant expressed, “Time to slow down. I found myself very burnt out this year after trying to balance everything” (participant 77, Study 1).

### **Implications**

Taken together, the findings from this dissertation have numerous implications. From a clinical standpoint, findings from both studies underscore the relevance of mental health problems among a student-athlete population and point to the importance of increasing mental health awareness and support for this population. Athletes in the qualitative study struggled to recognize mental health problems initially and instead attributed their difficulties to personal weaknesses, performance decline, or their inability to meet their athletic expectations. This finding points to the importance of increasing mental health awareness in sport generally for athletes, coaches, and support staff. Athletes need to be informed about the early signs and symptoms of a range of mental health problems and how to differentiate mental health symptoms from general stress or performance-related difficulties. Athletes and sport organizations broadly

would benefit from interventions aimed at increasing mental health literacy to assist athletes in recognizing early warning signs of mental health problems, preventing mental health problems from developing, and providing strategies and resources to adequately address mental health problems (Castaldelli-Maia et al., 2019, Tomalski, 2019), in addition to increasing openness about mental health generally. While mental health literacy is a modifiable factor, gains made regarding increased knowledge and decreased mental health help-seeking stigma may decrease over time (Liao et al., 2023). Thus, it would be important that interventions aimed at addressing mental health literacy are implemented throughout an athletes' sport involvement as their mental health experiences evolve.

Findings from both studies also suggest that the way that mental health in sport is currently understood and managed is ineffective for athletes, and a new approach is needed (Henriksen et al., 2020). In addition to gaps in knowledge, athletes in Study 2 struggled to address their mental health problems when they arose due to systemic barriers (e.g., busy schedules, lack of resources and information), inaccurate attributions of their mental health problems, and personal stigma. Current recommendations suggest that the current messaging (i.e., the Sport Ethic) in sport is ultimately not conducive to optimal health (Henriksen et al., 2020). Mental health in sport needs to be better defined and broadened to be understood as more than the absence of mental illness, and processes need to be implemented in order to address gaps in messaging and services related to mental health, which has traditionally been neglected (Henriksen et al., 2020; Kuettel & Larsen, 2020; Van Slingerland et al., 2019). Systemic changes likely need to be implemented so that athletes can maintain their sport involvement, even when they are experiencing a performance disruption or mental health problem, but also have time to prioritize other areas of their lives and identities that rejuvenate them (Henriksen et al., 2020;

Pankow et al., 2021). Generally, there needs to be a better balance for athletes in terms of investment and engagement with sport, the emphasis on top performance, and time to focus on other personal values and activities (Henriksen et al., 2020).

Related to the gaps in mental health messaging and supports in sport, currently, the role of psychology in sport is primarily to provide performance enhancement skills to optimize sport performance. Findings from this dissertation suggest that athletes, who are widely impacted by symptoms of mental health problems, require a clinical focus in terms of mental health assessment, treatment, and prevention in addition to skills for optimizing performance. Care should be given to ensure that appropriate professionals are situated in sport to address athletes' mental health who are trained in evidence-based psychological assessment and treatment and can conceptualize athletes as "whole people", beyond their athletic involvement, understand the development of mental health problems within and beyond athletes' sport involvement, and impart skills that are beneficial for performance enhancement and general coping (Fogaca, 2019; Henriksen et al., 2020). Systemically, sport organizations may benefit from investing in hiring mental health professionals who can address the aforementioned areas and ensure that these individuals are well-integrated into the sport environment and athlete support team (Tomalski, 2019). Indeed, at a systemic level, much work is needed in order to ensure that clear processes are in place for all support staff in terms of how to address mental health issues when they arise, communication about mental health issues and confidentiality, and effective prevention strategies, an ultimately ensuring that there is someone who is accountable for monitoring athletes' mental health (Henriksen et al., 2020; Tomalski, 2019).

It is important to note that one reason that athletes' mental health problems may be under recognized is because they are not being asked directly about them on a consistent basis. This

relates directly to there being gaps in athlete support teams related to mental health. If no professional is in place who can understand and address mental health problems, ultimately, no one is equipped to effectively manage mental health problems when they arise, and it is unclear who is ultimately responsible for checking in on athletes' mental health. Findings from both studies support the current recommendations that encourage regular monitoring of mental health symptoms in sport to encourage openness about mental health and to assist athletes in identifying early warning signs of mental health problems before they become significant problems (Tomalski, 2019). Indeed, incorporating regular monitoring of mental health increases openness about mental health and allows professionals to direct athletes to appropriate supports in a timely manner. Findings from my study would suggest that athletes are willing to report their mental health struggles on validated questionnaires (Study 1) and when asked about them in a qualitative interview (Study 2), and that both methods were beneficial in terms of understanding athletes' mental health experiences. Other researchers have posed that monitoring symptoms of mental health problems may be especially important during times of transition or increased stress (e.g., during an injury, retirement, or performance failure, or if there is a change in starting or scholarship status; Henriksen et al., 2020; Kuettel & Larsen, 2020; Putukian, 2016; Sullivan et al., 2019). This is consistent with findings from my second study which found that times of disruption (i.e., injury, COVID-19, performance decline) were especially critical in the development and exacerbation of mental health problems, but also revealed that athletes' mental health experiences were nuanced during these stressors and transitions. Further, athletes may continue to function at a high level, despite being widely impacted by mental health problems (Van Slingerland et al., 2018), which can make mental health problems difficult to identify in this environment. Athletes' high levels of functioning make it increasingly important to have

additional practices in place that ensure mental health problems can be identified and treated in a timely manner, as many athletes may not show a significant decline in functioning or come forward with mental health difficulties. While this practice of regularly monitoring mental health will by no means change the general attitude and stigma in sport regarding mental health in and of itself, it could be a small step towards normalizing and acknowledging the presence and important of mental health problems among this population (Tomalski, 2019).

In addition to acknowledging and more consistently monitoring mental health among athletes, findings from this dissertation suggest that the use of single methods to assess mental health are limited in terms of understanding mental health problems and experiences among this population. Thus, this dissertation has implications for the assessment of mental health problems among athletes. For instance, findings from Study 1 related to the COVID-19 pandemic demonstrated that using multiple methods (e.g., self-report measures and open-ended questions) to assess mental health was beneficial in terms of understanding the most relevant factors that impacted athletes' mental health. Further, findings from Study 2 provided further insight into the role of the sport context in understanding athletes' mental health problems and barriers to seeking appropriate care. As previously stated, ensuring that a trained mental health professional who is competent in the use of multiple assessment methods (e.g., clinical interviewing, interpreting validated mental health measures, and case conceptualization) is situated in sport to comprehensively assess athletes' mental health would greatly assist with addressing and supporting athletes to receive appropriate mental health support.

### **Strengths and Limitations**

There are numerous strengths of this dissertation. It is noteworthy that this study examined a broad range of mental health symptoms among Canadian student-athletes, including

relatively less-researched conditions, such as PTSD. Further, this was one of the first studies to my knowledge to examine student-athletes' mental health experiences using a qualitative approach. This approach allowed participants to share their lived experiences and recommendations regarding how to address mental health in sport moving forward. The use of multiple methods in this study underscored the importance of utilizing multiple methods to assess student-athletes' mental health and the importance of understanding student-athletes' mental health within their individual and sporting contexts. In terms of limitations, results should be interpreted with caution given the relatively small sample size and are limited to participants from a central-Canadian university. As previously stated, the scope of mental health symptoms may be slightly elevated as I used self-report screening measures as opposed to in-depth, diagnostic clinical interviews. Further, related to assessment, the use of varying measures of mental health symptoms is a limitation of this dissertation as it is impossible to directly compare these results to other samples of student-athletes. Consistency in measures used to assess mental health symptoms among athletes would be an important direction for future research and clinical practice (described below). Finally, my sample is limited to primarily white, cis-gendered, individuals who were native to Canada, which limits the generalizability of my results.

### **Future Directions**

The findings from this dissertation inform directions for future research and clinical practice. Future research should extend and replicate my findings and include student-athletes that represent various sports from across Canada and over multiple athletic seasons. Though my results provide a brief estimate of symptoms of mental health problems among student-athletes, this population's mental health should continue to be explored with increased specificity and include additional mental health problems (e.g., specific types of anxiety and depressive

disorders) to fully understand the types of mental health problems that impact athletes. Further, utilizing clinical interviews to gain a more comprehensive understanding of the prevalence of mental health problems among student-athletes would be beneficial, as results indicated that self-reported measures were limited in capturing the full picture of student-athletes' mental health knowledge and symptoms. My findings support existing research that suggests that athletes may require the development of assessment tools, possibly sport-specific measures, that are designed to detect mental health symptoms in the unique sport context, as mental health symptoms can be challenging to identify and distinguish from normal behaviour (Kuettel & Larsen, 2020; Mountjoy et al., 2023; Reardon et al., 2019). Future research should continue to develop measures that are suitable and reliable for an athlete population and consider athletes' sporting behaviours when considering their mental health. Moreover, future studies should examine the feasibility, acceptability, and benefits of implementing ongoing mental health monitoring, and consistent assessment of mental health using multiple measures as this has been recommended by collegiate and national sport organizations as best practice (Mountjoy et al., 2023; Tomalski, 2019). Such measures may be implemented for athletes' who are identified to be at risk for mental health problems by trained psychology professionals (e.g., psychologists). Finally, future research should continue to explore the mental health experiences of athletes from diverse groups (e.g., racial and ethnic minorities, 2SLGBTQ+) as individuals with increasing elements of diversity are likely to have unique mental health experiences and are at increased risk for heightened mental distress due to marginalization and intersecting discrimination (Ballesteros et al., 2018; DeFoor, Stepleman, & Mann, 2018).

### **Knowledge Translation and Mobilization**

The aim of conducting this research was to raise awareness about and stimulate change regarding mental health in sport, an area where mental health is stigmatized and underserved. As such, knowledge translation and mobilization are of critical importance in order to engage key stakeholders and to ensure that ultimately, information gleaned from this research can be useful to the population of interest. Knowledge translation or mobilization is defined as:

*The reciprocal and complementary flow and uptake of research knowledge between researchers, knowledge brokers and knowledge users—both within and beyond academia—in such a way that may benefit users and create positive impacts within Canada and/or internationally, and, ultimately, has the potential to enhance the profile, reach and impact of social sciences and humanities research.* (Social Sciences and Humanities Research Council, 2019, para. 32).

Knowledge mobilization is considered beneficial as ensures that findings from this research will be shared with those who stand to benefit from the information, and findings are shared in such a way that is relevant, accessible and easily digestible (Greenhalgh et al., 2004; Ungar et al., 2015). Considering these factors, knowledge translation was incorporated throughout the entirety of the study design. Prior to developing the study design, I consulted with the U of M Executive Director of Student Services, the Director of Bison Sport, Psychologists who specialize in sport, and athletes to determine the specific needs of this group and develop the study design and research questions. Throughout data collection, I was also available to teams and staff for presentations on emotional wellness related to research findings. Findings from this dissertation will be shared with the director of Bison Sport and other key stakeholders in sport in order to identify possible ways of supporting the student-athlete population (e.g., through psychoeducation sessions for athletes or coaching staff). Findings have been and will

continue to be shared within the sport community to local coaches, sport professionals, and athletes through my collaborative relationships with the national and provincial sport centres in addition to being disseminated through academic conferences and journals. Findings will provide information about the needs of student-athletes regarding mental health and inform recommendations and targets for intervention to address barriers and optimize mental health among student-athletes. Specifically, discussion will focus on the assessment of mental health symptoms in sport, increasing mental health literacy in sport among stakeholders in sport, and systemic changes that may support the mental health of student-athletes (e.g., incorporating a mental health professional in sport).

## **Conclusion**

This research examined student-athlete mental health from quantitative and qualitative perspectives. Findings point to the relevance of mental health symptoms among student-athletes and provide helpful information regarding specific barriers and facilitators to addressing mental health among this population. Results from both studies suggest that student-athletes are widely impacted by mental health symptoms, despite continuing to function relatively well, and underscore the importance of increasing openness and awareness regarding mental health in sport. Athletes expressed a desire for increased knowledge, coping strategies, resources, and general awareness about mental health, beyond performance enhancement. This dissertation highlighted that sport poses challenges to athletes' mental health in ways that are often underappreciated. Indeed, while athletes value their sport experiences, including the opportunities to compete, push themselves, and build character, they indicated that a better balance is needed to support their performance and mental health, which has traditionally been neglected. Moving forward, researchers, clinicians, and sport administrators should work to meet

the needs and desires of student-athletes to optimize both their overall well-being and performance.

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## Appendices

## Appendix A

## Mental Health Survey (T1 &amp; T3)

**Demographic Questionnaire**

To start, please provide your email so that we can link your responses: \_\_\_\_\_

*\*This question will be asked at subsequent timepoints following the initial survey\**

Are you still on the roster as a member of Bison Sport or has your involvement in Bison Sport changed in any way since you completed the last survey? Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, can you please specify what has changed about your involvement (e.g., dropped out of sport, changed universities, etc.).

- 
1. Please indicate your age: \_\_\_\_\_
  2. Please indicate the gender that you identify with: \_\_\_\_\_
  3. Please indicate your academic program: \_\_\_\_\_
  4. First language: \_\_\_ English; \_\_\_ French; \_\_\_ Other (specify): \_\_\_\_\_
  5. If English is not first language: How many years have you: \_\_\_ spoken English; \_\_\_ read English
  6. Ethnicity: Please select which ethnicity or ethnicities that best fit you:  
\_\_\_ Arab/West Asian (e.g., Armenian, Egyptian, Iranian, Lebanese, Moroccan)  
\_\_\_ Black (African)  
\_\_\_ Chinese  
\_\_\_ Filipino  
\_\_\_ Japanese

\_\_\_ Indigenous

\_\_\_ First Nations

\_\_\_ Metis

\_\_\_ Inuit

\_\_\_ Korean

\_\_\_ Latin American

\_\_\_ South Asian (e.g., East Indian, Pakistani, Punjabi, Sri Lankan)

\_\_\_ South East Asian (e.g., Cambodian, Indonesian, Laotian, Vietnamese)

\_\_\_ White/European (e.g., English, French, Scottish, Irish)

\_\_\_ Other

7. Relationship status: \_\_\_\_\_ Single; \_\_\_\_\_ Married; \_\_\_\_\_ Ongoing relationship
8. Living situation: \_\_\_\_\_ At home; \_\_\_\_\_ Living on your own; \_\_\_\_\_ Live with roommates
9. Please indicate what year of university you are entering: \_\_\_\_\_
10. Please indicate the sport that you participate in at the University of Manitoba: \_\_\_\_\_
11. How long have you played this sport? \_\_\_\_\_
12. How long have you played this sport at the university level? \_\_\_\_\_
13. How many hours per week do you spend training right now? \_\_\_\_\_
14. What phase of your competitive season are you in right now (select one)?
  - A) Pre-season
  - B) Competitive season
  - C) Off season
15. Have you ever been diagnosed or struggled with a mental health problem?  
\_\_\_\_\_

16. If yes, what was the diagnosis and when did that happen?

\_\_\_\_\_

17. Did you seek help for that problem? And if yes, what help did you seek? Yes/No

\_\_\_\_\_

**PROMIS-Depression**

**Please respond to each question or statement by marking one box per row.**

**In the past 7 days...**

		Never	Rarely	Sometimes	Often	Always
EDDEP04	I felt worthless .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
EDDEP06	I felt helpless .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
EDDEP29	I felt depressed .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
EDDEP41	I felt hopeless .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
EDDEP22	I felt like a failure .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
EDDEP36	I felt unhappy .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

**PROMIS Anxiety**

**Please respond to each question or statement by marking one box per row.**

**In the past 7 days...**

		Never	Rarely	Sometimes	Often	Always
EDANX01	I felt fearful.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
EDANX40	I found it hard to focus on anything other than my anxiety .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
EDANX41	My worries overwhelmed me.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
EDANX53	I felt uneasy .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
EDANX46	I felt nervous.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
EDANX07	I felt like I needed help for my anxiety .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

**PROMIS Alcohol Use**

The following questions ask about your alcohol use and behaviors.

**Yes**

**No**

In the past 30 days, did you drink any type of alcoholic beverage?

Yes → Proceed to short form items

No → Skip the remaining short form items

In the past 30 days...		Never	Rarely	Sometimes	Often	Almost always
CONS01	I spent too much time drinking .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
CONS07	I drank heavily at a single sitting.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
CONS08	I drank too much .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
CRAC02	I drank more than planned.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
CRAC07	I had trouble controlling my drinking .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
CRAC08	It was difficult for me to stop drinking after one or two drinks.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
CRAC13	It was difficult to get the thought of drinking out of my mind .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

**PROMIS Substance Use**

**Please respond to each question or statement by marking one box per row.**

In the past 30 days, have you used drugs, **Yes** **No**  
 other than alcohol or your prescribed medications?

In the past 30 days...		Not at all	A little bit	Somewhat	Quite a bit	Very much
SU002V016	I felt that my drug use was out of control.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
In the past 30 days...		Never	Rarely	Sometimes	Often	Almost always
SU002V026	My desire to use drugs seemed overpowering.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
SU002V028	Drugs were the only thing I could think about.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
SU002V029	My drug use caused problems with people close to me.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
In the past 30 days...		Not at all	A little bit	Somewhat	Quite a bit	Very much
SU002V076	I have a drug problem.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
In the past 30 days...		Never	Rarely	Sometimes	Often	Almost always
SU002V126	I craved drugs.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
SU002V176	I spent a lot of time using drugs.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

### The PTSD Checklist for DSM-5 (PCL-5)

Have you experienced a stressful event that you still think about? Yes/no

When did that event take place?

Can you briefly describe what that event was? (optional)

**Instructions:** Below is a list of problems that people sometimes have in response to a very stressful experience. Please read each problem carefully and then circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past month.

In the past month, how much were you bothered by:	Not at all	A little bit	Moderately	Quite a bit	Extremely
1. Repeated, disturbing, and unwanted memories of the stressful experience?					
2. Repeated, disturbing dreams of the stressful experience?					
3. Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it)?					
4. Feeling very upset when something reminded you of the stressful experience?					
5. Having strong physical reactions when something reminded you of the stressful experience (for example, heart pounding, trouble breathing, sweating)?					
6. Avoiding memories, thoughts, or feelings related to the stressful experience?					
7. Avoiding external reminders of the stressful experience (for example, people, places, conversations, activities, objects, or situations)?					
8. Trouble remembering important parts of the stressful experience?					
9. Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous)?					
10. Blaming yourself or someone else for the stressful experience or what happened after it?					
11. Having strong negative feelings such as fear, horror, anger, guilt, or shame?					
12. Loss of interest in activities that you used to enjoy?					

13. Feeling distant or cut off from other people?					
14. Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)?					
15. Irritable behavior, angry outbursts, or acting aggressively?					
16. Taking too many risks or doing things that could cause you harm?					
17. Being "superalert" or watchful or on guard?					
18. Feeling jumpy or easily startled?					
19. Having difficulty concentrating?					
20. Trouble falling or staying asleep?					

### Eating Disorders Examination Questionnaire Short Form (EDE-QS)

ON HOW MANY OF THE PAST 7 DAYS....	0 days	1-2 days	3-5 days	6-7 days
1. Have you been deliberately <u>trying</u> to limit the amount of food you eat to influence your weight or shape (whether or not you have succeeded)?	0	1	2	3
2. Have you gone for long periods of time (e.g., 8 or more waking hours) without eating anything at all in order to influence your weight or shape?	0	1	2	3
3. Has thinking about <u>food, eating or calories</u> made it very difficult to concentrate on things you are interested in (such as working, following a conversation or reading)?	0	1	2	3
4. Has thinking about your <u>weight or shape</u> made it very difficult to concentrate on things you are interested in (such as working, following a conversation or reading)?	0	1	2	3
5. Have you had a definite fear that you might gain weight?	0	1	2	3
6. Have you had a strong desire to lose weight?	0	1	2	3
7. Have you tried to control your weight or shape by making yourself sick (vomit) or taking laxatives?	0	1	2	3
8. Have you exercised in a driven or compulsive way as a means of controlling your weight, shape or body fat, or to burn off calories?	0	1	2	3
9. Have you had a sense of having lost control over your eating (at the time that you were eating)?	0	1	2	3
10. On how many of these days ( <i>i.e.</i> <u>days on which you had a sense of having lost control over your eating</u> ) did you eat what other people would regard as an <u>unusually large amount of food in one go</u> ?	0	1	2	3
OVER THE PAST 7 DAYS ...	Not at all	Slightly	Moderately	Markedly
11. Has your weight or shape influenced how you think about (judge) yourself as a person?	0	1	2	3
12. How dissatisfied have you been with your weight or shape?	0	1	2	3

**Kessler 6-Item Psychological Distress Scale**

The following questions are about how you have been feeling during the past 30 days.	None	A Little	Some	Most	All
1. About how often during the past 30 days did you feel <b>nervous</b> - would you say all of the time, most of the time, some of the time, a little of the time, or none of the time?					
2. During the past 30 days, about how often did you feel <b>hopeless</b> - all of the time, most of the time, some of the time, a little of the time, or none of the time?					
3. During the past 30 days, about how often did you feel <b>restless or fidgety</b> ?					
4. How often did you feel so depressed that <b>nothing could cheer you up</b> ?					
5. During the past 30 days, about how often did you feel that <b>everything was an effort</b> ?					
6. During the past 30 days, about how often did you feel <b>worthless</b> ?					

**Mental Health Literacy**

Please read each statement carefully and indicate your degree of agreement using the scale below. In responding, please be completely honest and open.

Not at All	Somewhat	Moderate	Very	Extremely
1	2	3	4	5

How knowledgeable are you about:

1. the signs and symptoms of mental health problems such as anxiety and depression?
2. the possible causes of mental health problems?
3. the types of professional help available for common mental health problems such as anxiety and depression?
4. how to go about seeking professional help for mental health problems

## Appendix B

## COVID-19 Survey Questions

**TO APPEAR AT THE BEGINNING OF THE SURVEY:**

**Please note that we have included additional questions related to the COVID-19 pandemic and how it has impacted you. To thank you for your completion of these additional questions, you will be entered to win one of four \$50 gift cards for amazon.ca. These additional questions should only take you about 5-10 minutes to complete.**

**COVID-19 Questions**

- 1) Have you been tested for COVID-19?  
 Yes  
 No
  
- 2) If **yes**, have you tested positive for COVID-19?  
 Yes  
 No
  
- 3) At any time since the start of the pandemic did you have symptoms of COVID-19 that you were concerned about?  
 Yes   
 No

Approximately how many minutes or hours do you spend a day consuming information on COVID-19 (e.g., watching news, reading about COVID-19, & talking about COVID-19)? [please only report minutes OR hours]

\_\_\_\_\_ (minutes) OR \_\_\_\_\_ hours

Preamble: In response to the COVID-19 Pandemic, many public health restrictions have been put into place that may have impacted you (e.g., social (physical) distancing, university closures, etc.). We are interested in how these changes have impacted you.

To what extent has COVID-19 impacted your...	Not at all	Slightly	Moderately	Very Much	Extremely
Sport training					
Competition					
Mental well-being					
Sleep					
Diet					

Use of Substances (e.g., alcohol, cannabis, etc.)					
Physical Fitness					
Academics					

1. In what ways has COVID-19 has impacted your sport training?
2. In what ways has COVID-19 has impacted your sport competition(s) or competition plans?
3. How have the public health restrictions in response to COVID-19 impacted your engagement in healthy behaviours (e.g., sleep, diet, exercise, etc.)?
4. Please describe, how (if at all), your use of substances (e.g., alcohol, cannabis, nicotine, caffeine, etc.) has changed since the COVID-19 pandemic.
5. Please describe how (if at all), the COVID-19 pandemic has impacted your academic year or plans?
6. How has COVID-19 impacted your mental health?
7. How (if at all) has COVID-19 impacted you positively?
8. Please discuss what you have done to maintain connection or contact with people involved in your sport (e.g., with coaches, teammates, trainers, etc.) throughout COVID-19.
9. What are your primary concerns related to COVID-19 as they pertain to your sport involvement?
10. What are your primary concerns related to COVID-19 as they pertain to other areas of your life (e.g., academics, finances, social and familial relationships)
11. What strategies have you used to manage stress during this time?
12. What services or supports have you accessed during the COVID 19 pandemic?

	Family doctor
	Physiotherapist
	Athletic Therapist
	Massage Therapist
	Counsellor
	Psychologist
	Dietician
	Other

If you selected “other” in the previous question, please list the service(s) that you were referring to:

13. Has your use of or access to these services changed since the COVID 19 pandemic?
14. What services or supports would be beneficial to you right now that you have not been able to access due to COVID- 19? \*(same check box as above)

**To thank you for the additional time required to complete these questions, you have been entered into a random draw to win one of four \$50 gift cards for amazon.ca. We will use the email that you provided at the beginning of the survey and contact you if you are selected. If you have any concerns or would like to provide an alternative email, please email [umceccal@myumanitoba.ca](mailto:umceccal@myumanitoba.ca)**

## Appendix C

## Study 2 Qualitative Interview Guide

**Preamble:**

- Introduce yourself
- Remind participant about the project aims: Our goal for this project is to better understand the mental health experiences of student-athletes.
- Remind participant that the interview will be audio-recorded and let them know when you are turning on the recorder (get consent for this) Let them know that the video will not be kept (due to zoom recording function)
- Review consent form with participant and obtain informed consent before proceeding
- Let the participant know that they can refuse to answer any questions that they would like to

**General probes to consider throughout:**

- Tell me more about that.
  - Can you give me an example of that?
  - What did/does that mean to you?
  - How did/does that impact you?
1. To start, I'd like to hear about how you came to participate in sport at the university level. How did you come to this point of playing university sports? What has motivated you to stay involved up to this point?
  2. What does your training and competition schedule look like now? What did it look like last year or pre-COVID?
  3. Objective 1: Experience: As you know, we are interested in understanding the mental health experiences of student-athletes. Throughout your involvement in sport, have you ever struggled with mental health? Or have you ever noticed that your mental health was a problem?
    - Probe: What were some of the things that you noticed (e.g., thoughts, feelings, behaviors)?
    - Probe: What alerted you that something was wrong?
    - Probe: When did that happen?
    - Probe: How did this experience impact you? Did it impact your performance? Other aspects of your life?
- b. Understanding: Tell me about how you understood that experience at the time.
- Probe: How did you know what it was? How did you know it was a mental health issue? (diagnosis?) What did you think it was?
  - Probe: What were some factors that you think may have contributed to you experiencing this?

- Probe: Was this the first/only time that you experienced this? Were there other times in the past?
- Probe: From your perspective, how has sport impacted your understanding of mental health, or impacted your mental health in any way?
4. Management: What did you do about it? How did you cope with the experience?
- Probe: What aspects were helpful or not?
- Probe: Did you seek help? Why or why not?
- Probe: Do you think you would have reacted differently if you weren't an athlete?
- Probe: Who from your "sporting world" was aware of your struggles? How did they find out about them? How did they respond? Did it impact your relationships in sport?
- Probe: Was there anything that you wish that you would have done differently? Or any changes that you have or could make to prevent your mental health difficulties from getting worse in the future?
5. What was it like to struggle with your mental health and be an athlete?
- Probe: How did your challenges with mental health impact your involvement in sport?
- Probe: How did your involvement as an athlete impact how you understood what was happening to you?
- Probe: Was there anything specific to your involvement in sport that either helped or worsened your condition?
- Probe: How did your involvement in sport impact whether or not you sought help or how you coped?
6. How would you describe your mental health now?
- Probe: What factors do you think have contributed to that?
- Probe: What has changed for you?
7. Tell me about how the COVID-19 pandemic has impacted your mental health.
- Probe: If you had a pre-existing mental health problem, how has it progressed over the pandemic? (Probe for change/impact: Gotten better, worse, stayed the same).
- Probe: How has your engagement in health behaviours (e.g., sleep, healthy eating, substance use, exercise/training) changed?
- Probe: What strategies have you been using to manage stress during the pandemic?
- Probe: What supports do you feel that you could benefit from that you have not been able to access?
8. What would you like people who are involved in sport to know about mental health?

Probe: What sorts of things do you wish could have been different?

Probe: What aspects of sport do you think might need to change? Or what parts were helpful?

9. Do you have any final thoughts that you would like to say before we end the interview?

Closing

Thank participant for their time