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The Impact of an Online Psychological Skills Training Program on the Mental Health of Varsity Athletes

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The Impact of an Online Psychological Skills Training Program on the Mental Health of Varsity Athletes

By

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The Impact of an Online Psychological Skills Training Program on the Mental Health of Varsity Athletes

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DECLARATION OF CO-AUTHORSHIP

I. Co-Authorship

I hereby declare that this thesis incorporates material that is result of joint research, as Dr. Krista Munroe-Chandler (my supervisor) provided guidance and feedback. In all cases, the key ideas, primary contributions, experimental designs, data analysis, interpretation, and writing were performed by Aidan Kovacs, and the contribution of his co-author was primarily through the provision of critical feedback to enhance the quality of the research.

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ABSTRACT

Mental health concerns in Canada continue to rise, this is especially apparent for young adults, and those attending University (Giamos et al., 2017). In comparison to non-athlete students, varsity athletes attending University must balance the same academic priorities as non-athletes, while also maintaining the responsibilities associated with their sport (Moreland et al., 2018). Due to this, varsity athletes can be faced with enhanced mental health concerns, such as increased symptoms of anxiety and depression (Neal et al., 2013). This is concerning, as varsity athletes often report low levels of mental health treatment seeking (Armstrong et al., 2015). Knowing this, the goal of the present study was to provide varsity athletes with an asynchronous online psychological skills training (PST) program with the goal to improve mental health. Athletes were given access to six PST modules, including the following skills: goal-setting, imagery, self-talk, routines, managing emotions, relaxation/psyching up (Ely, Munroe-Chandler, et al., 2023). The study followed a pre-post design, where athletes completed questionnaires prior to completing the modules, which measured overall mental health, psychological resilience, and satisfaction with life. Following the six-week period where athletes completed the modules, they were asked to complete the same series of questionnaires. A total of 26 varsity athletes completed the study. It was hypothesized that athletes would report improved mental health following the completion of the online modules (e.g., lower levels of anxiety). Following the intervention, there were no significant differences in scores on mental health measures or satisfaction with life. However, there was a statistically significant increase in mean scores on the brief resilience scale. Possible reasons for the lack of significant findings include a small sample size, as well as the asynchronous online delivery of PST amongst the busy schedules of athletes.

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RESEARCH ARTICLE

Introduction

Mental health concerns in Canada have continued to rise in recent decades (American College Health Association, 2016), especially amongst young adults (Giamos et al., 2017). In Canada, adolescence leading into young adulthood is a time which represents a major risk for the development of poor mental health. In fact, it has been estimated that 75% of all mental health disorders start by the age of 25 (Kessler et al., 2007). The transition from adolescence to young adulthood can be particularly challenging, as individuals are required to navigate a variety of personal changes, including academic and social pressures (Acharya et al., 2018). More specifically, during a student's post-secondary education, they are exposed to a variety of stressors, including, but not limited to course demands, moving away from home, peer-pressure, and financial concerns (Giamos et al., 2017). As a result of the many stressors, students often experience greater distress throughout post-secondary school compared to pre-enrollment levels (Bewick et al., 2010). This distress that university students experience can manifest itself in the form of anxiety and depression. Both anxiety and depression are preeminent factors in overall satisfaction with life, which is an important factor in subjective well-being (Pavot & Diener, 2008). Taken together, university students represent a vulnerable population in terms of developing poor mental health. This is especially true for university student athletes, who must balance the same priorities of non-athletes, while also maintaining the responsibilities associated with their sport (Moreland et al., 2018). In fact, several studies have noted the enhanced mental health concerns that student athletes face, such as suicidal ideations, excessive worry or fear, and problems concentrating (Neal et al., 2013; Stevens et al., 2013).

Early definitions of mental health described it as an absence of mental illness, but it is now clear that this is not the case (Galderisi et al., 2015; Manwell et al., 2015; Westerhof & Keyes, 2010). Rather, mental health represents a dynamic state of emotions and cognitions, where an individual who is in good mental health, may experience negative emotions such as sadness or anger (Galderisi et al., 2015). Anxiety and depression are considered two of the most prominent mental health concerns amongst Canadians (Dozois, 2021), with university student populations being no exception to this (Mofatteh, 2020). Generally, anxiety can be considered as an affective, physiological, cognitive, and behavioural state, that may stem from an individual's perception of threat (Epstein, 1985). The state of anxiety has been likened to a feeling of unfocused arousal, which is discomforting in nature (Dobson, 1985). Anxiety has been found to be high amongst the average Canadian university student population (Giamos et al., 2017). In 2016, the American College Health Association (ACHA) reported that over 46% of students experienced above average stress and anxiety, with nearly 15% of these students experiencing tremendous levels. With this in mind, it is important to distinguish between anxiety, and clinical anxiety. On its own, "anxiety" is an emotion which can occur normally (Lader & Marks, 2013). It is referred to as normal in the sense that it affects almost all individuals and is a regular occurrence in everyday life. There are a number of symptoms that are representative of heightened anxiety, such as thoughts of worry, restlessness, trouble concentrating, and trouble sleeping (American Psychiatric Association, 2013). However, the experience of anxiety can be manifested in a clinical disorder, whereby the level of anxiety that an individual experiences is more apparent or persistent than the intensity, or duration which the individual regards as the norm. This can be reflected in disorders such as generalized anxiety disorder or obsessive-compulsive disorder (Lader & Marks, 2013). While there is a large number of individuals who

experience clinical anxiety disorders, an even greater proportion of the population commonly experience symptoms of anxiety that, while not warranting a clinical diagnosis for an anxiety disorder, can negatively impact everyday functioning (Rebar et al., 2015).

Depression is a common health problem for university students (Lyubomirsky et al., 2003; Vredenburg et al., 1988). Just as with anxiety, it is important to distinguish between a clinically diagnosed depressive disorder, and the experience of non-clinical depressive symptoms. Generally, the core experience of depression is referred to as a dysphoric state. For an individual to be clinically diagnosed with major depressive disorder they must present five or more symptoms for a period of two weeks, with one of the symptoms being depressed mood (Tolentino & Schmidt, 2018). Some of the secondary symptoms that individuals may present include functional impairment, feelings of worthlessness, suicidal ideation, psychotic symptoms, among others (Paykel, 2008). Even still, many individuals experience depressive symptoms, while not meeting the criteria for a clinical diagnosis. Notably, the symptom of depressed mood is a common experience for individuals who do not necessarily have a clinical diagnosis for depression (Parker & Paterson, 2015). Despite receiving limited attention in the literature, depression amongst university students has been steadily increasing over recent decades (Ceyhan et al., 2009; Ibrahim et al., 2013). A systematic review conducted by Ibrahim et al. (2013) found that between 1990-2010, the average depression prevalence amongst university students was 30.6%, much higher than the general population. Although student athletes are not more likely than the non-student athlete to experience depressive symptoms, they have been identified as less likely to seek help for mental health concerns, thus increasing the risk for negative outcomes, including suicide (Kurt et al., 2006).

While research in Canadian university settings has been less prevalent compared to other areas, such as the United States, preliminary findings echo much of the concerns that have been found in other research. Notably, Canadian university students present higher levels of anxiety and depression in comparison to the general population (Robinson et al., 2016). In addition to the many stressors that university students face (e.g., course load, financial responsibilities), this is compounded with the fact that those who do experience mental health concerns, often don't seek the help they need. Robinson et al. (2016) found that only 8% of students surveyed at a Canadian university had previously accessed mental health services, with 9% indicating that they were likely to access services in the future. Further, many students (43.5%) believed that they did not have the time to access services, highlighting this as a primary reason for not seeking counselling, even if they were experiencing distress. Researchers have pointed to additional reasons that students do not access services, such as a preference to deal with issues themselves (Eisenberg et al., 2011). While the number of students who receive services appears to be minimal, this is partly attributed to the fact that many university counselling centres are often overburdened with the number of students that seek services, creating long wait times for students before they receive any help (Huang et al., 2018). Counselling centres at universities often must refer students to external agencies, which may create further difficulties for students, as external agencies may not be as accessible (i.e., travel distance) (Samson, 2014). It is also important to note that minimal research has investigated the mental health of varsity athletes in Canada. As compared to the United States, varsity athletes in Canada have less mental health resources at their disposal. More specifically, varsity athletes in the United States have greater access to mental health professionals, as well as referral systems put in place (Moreland et al., 2018).

Varsity athletes represent a unique subset of the student population. While athletes attend post-secondary school with many of the same academic and personal goals that non-athletes have, they are tasked with balancing various additional responsibilities which are associated with playing a varsity sport (Etzel et al., 2002). This includes balancing athletic and academic endeavors, navigating the various relationships within sport and school, and dealing with the termination of their athletic career at the conclusion of school (Parham, 1993). For some athletes, the amount of time which their sport requires can equate to a full-time job, with some athletes reporting that they spend north of 40 hours per week on their sport (Paule & Gilson, 2011). While researchers have highlighted that student athletes are at just as great of a risk of developing anxiety and depression as their non-athlete peers (Wolanin et al., 2016), there is other research that has found collegiate athletes to be less likely to experience depressive symptoms than non-athletes, due to the stronger social networks (Armstrong et al., 2015). Despite this, the fact that student athletes are less likely than their non-athlete peers to seek help for mental health concerns (Armstrong et al., 2015), combined with the difficulty accessing university student counselling centres, creates a problem for athletes who experience mental health concerns. Overall, treatment seeking is quite low among elite, and student athletes (Armstrong et al., 2015; Wahto et al., 2016). This can partly be attributed to the traditional athletic environment, where athletes are expected to be mentally tough, and exhibiting signs of mental health concerns could be viewed as a weakness by teammates, or coaches (Armstrong et al., 2015). Outside of external views, an athlete's own sense of coping has been found to reflect attitudes towards seeking mental health support. That is, athletes who have stronger positive coping skills are more likely to seek external help for their own mental health concerns (Kroshus, 2017). Further, athletes with heightened levels of depression tend to use more negative styles of coping (Nixdorf et al., 2013).

Psychological skills training (PST), which is the deliberate and systematic practice of psychological skills (e.g., imagery, self-talk), has been used to enhance positive coping skills amongst athlete populations (Fogaca, 2021; Smith et al., 1995). Further, these psychological skills have the potential to be beneficial for athletes to apply to their everyday lives (Lebrun et al., 2019; Rice et al., 2016).

While not extensively researched, there is support for the beneficial use of sport-related psychological skills on mental health outcomes. Smith et al. (1995) were among the first to suggest the possible translation of athletic coping skills and strategies (goal-setting, concentration) being applied to domains outside of sport, such as assistance with daily stressors. Fogaca (2021) implemented a PST program among college athletes, and found improvements in coping skills, as well as lower levels of anxiety. Further, Dailey (2022) found that stress, resilience, and athlete coping abilities combined significantly predicted mental health amongst a college athlete population. To measure levels of coping amongst athletes, the seven items of the Athletic Coping Skills Inventory (ACSI-28; Smith et al., 1995) were summed (i.e., coping with adversity, coachability, concentration, confidence/achievement/motivation, goal-setting, peaking under pressure, and freedom from worry) to gain a single score. Despite these findings, and with the knowledge of the benefits that psychological skills can have in one's daily life (Estanol et al., 2013), minimal work has examined the effects of a structured PST program on mental health outcomes, especially amongst a university varsity athlete population.

Given student athletes' lack of free time and an unwillingness or inability to seek mental health services (Armstrong et al., 2015), a possible solution is to offer alternative means of support for athletes, which can be applied to both sport and life. PST programs offer a structured and consistent delivery of mental skills (e.g., goal-setting, imagery, self-talk). Many PST

programs are rooted in the cognitive-behavioural approach whereby alterations to one's thoughts can alter emotions and behaviours. With this, athletes are taught many skills to which, traditionally advertised as sport-specific and targeting performance enhancement (Boutcher & Rotella, 1987), can be applied to other domains of life and outcomes. Although the mental skills included in PST programs may differ based on individual athlete/team needs, Hardy et al. (1996) did suggest that basic psychological skills be learned before advanced skills. Basic psychological skills include imagery, self-talk, goal-setting, and relaxation, and these four basic skills are often included in a PST program (Ely, Paré, et al., 2023). Hardy and colleagues (1996) refer to advanced psychological skills as specific strategies to achieve ideal performance states (e.g., maintain concentration). Despite routines not often being discussed as part of PST programs, the primary function of routines includes influencing an athlete's ability to deal with distractions, focusing attention, and enhancing focus (Boutcher & Crews, 1987; Gould & Udry, 1994).

Generally, PST programs are employed to provide athletes with the necessary coping skills to apply to their sport (Park & Jeon, 2023). These skills can help athletes deal with various situations that may create a sense of stress or anxiety during performance. PST programs normally consist of a series of sessions over the course of several weeks (Sheard & Golby, 2006). In one of the few studies using a PST program to impact the mental health of student athletes (Fogaca et al., 2021), NCAA athletes participated in weekly in-person sessions (50 minutes per week) for a five-week period that aimed to improve various performance-related mental skills (e.g., developing positive self-talk, regulating anxiety, and developing a growth mindset). Athletes' coping skills and anxiety scores significantly improved. Other studies, albeit not focused specifically on athlete mental health, have yielded similar findings. Vidic (2021) examined the impact of a PST program on a Division I collegiate men's ice hockey team. The

program consisted of 20 sessions, each lasting between 20-60 minutes throughout the course of the season. In addition to significant increases in athletic coping skills, resilience, and mindfulness post intervention, qualitative results also indicated athletes' perceptions of enhanced performance-related traits as well as benefits to other aspects of daily life (e.g., improved academic performance, social benefits). Hogue (2020) provided a 20-minute PST session to youth athletes and examined its effects on protective responses to performance stress. Athletes in the intervention group developed enhanced psychological coping to deal with performance stress, while athletes in the control group showed heightened cortisol levels, reflecting increased performance-related stress. Altogether, the findings from previous PST studies show enhanced coping skills in athletes.

Traditional PST programs have generally been delivered face-to-face. Recently, especially during the height of the COVID-19 pandemic, PST programs have been offered to athletes online (Ely, Munroe-Chandler, et al., 2023). This format may be particularly beneficial for university athletes, because of its flexibility with respect to where and when it can be accessed. Online interventions that are interactive, user friendly and offer feedback to the user are most effective (Webb et al., 2010; Weinberg et al., 2012). Notwithstanding the noted benefits of online delivery (Ely, Munroe-Chandler, et al., 2023) and some preliminary evidence that mental skills can improve one's coping (Fogaca, 2021), there is sparce literature examining the impact of an online PST program on athletes' mental health. As such, the purpose of the current study was to examine whether an asynchronous online PST intervention improved varsity athletes' mental health, specifically anxiety and depression symptoms, and improved their use of coping and mental skills from pre to post intervention. Specifically, the asynchronous online nature of the present study allowed for a more flexible and time considerate delivery to

university student athletes, for whom a large time commitment to a PST program could be difficult. Based on previous research (Ely, Paré, et al., 2023; Hardy et al., 1996), six psychological skills were delivered throughout the program: 1) goal-setting, 2) imagery, 3) self-talk, 4) routines, 5) managing emotions, and 6) relaxation/psyching up. Drawing on the small body of literature examining PST programs on athlete coping skills and mental health (Fogaca, 2021; Vidic, 2021), it was hypothesized that participants of the present study would report a decrease in symptoms of anxiety and depression, as well as an increase in resilience and well-being following the PST intervention.

Method

Participants

Participants included student athletes enrolled at the University of Windsor as of September 2023. Of the 440 varsity athletes competing in the 2023-2024 season, 26 varsity (12 women, 14 men) athletes completed a pre-intervention questionnaire, all six PST modules, and a post-intervention questionnaire. Athletes competed in (basketball $n = 19$, ice hockey $n = 5$, football $n = 1$, baseball $n = 1$). Athletes ranged in year of study from first to fifth from a variety of faculties. More than 57% of the sample indicated they had not worked with a sport psychology consultant. Over 70% of the sample were white/Caucasian. Two athletes competed in fall sports, with the remaining 24 athletes competing in winter sports. The decision to combine all athletes into one sample was due to the fact that there were no significant differences between fall and winter sport athletes on the pre-intervention questionnaires ($ps < .05$). To reference the demographics of the present study, please refer to Table 1.

Program and Measures

PST Program

Athletes who volunteered to partake in the present study completed the asynchronous online PST program. Six psychological skills were delivered through interactive online modules each taking approximately 10-15 minutes to complete. The six skills included: 1) *Goal-setting*, which describes the various types of goals and how athletes can implement them in their own sport; 2) *Imagery*, which describes the multisensory nature of imagery training, and how it can be applied to different situations; 3) *Self-talk*, which describes the importance of positive self-talk, and how to create both instructional and motivational self-talk statements; 4) *Routines*, which describes different forms of pre-performance routines, and how athletes can build and create their own routines; 5) *Managing emotions*, which details various coping strategies and how athletes can implement such strategies within their sport; 6) *Relaxation/psyching up*, which provides athletes with techniques of appropriately relaxing, or psyching themselves up for competition. While participants were advised to complete one module per week for a total of 6 weeks, they were provided with all six modules at the onset of the study and were free to complete them at their own leisure. Previous research has demonstrated that providing athletes with all modules at once helps to prevent study dropouts (Ely, Munroe-Chandler, et al., 2023). Anecdotally, Ely, Munroe-Chandler et al. (2023) also reported that participants indicated their desire to complete the modules at their own pace. The interactive asynchronous nature of the modules is also in line with previous research which suggests that interactive and engaging forms of online PST provide the best results for participants (Webb et al., 2010).

Procedure

Recruitment

Participants were sent a recruitment email (see Appendix A) via the University of Windsor's Athletic Information System (AIMS). This email outlined the nature of the study and

what their voluntary participation would entail (Letter of information, see Appendix B). This information was contained within a Qualtrics link, which included all relevant documents that required viewing prior to participation. If an individual agreed to participate, they were asked to click on the link provided in the letter of information gaining their consent to participate. Following this, an email was distributed the week of August 28th, 2023, which included all relevant measures for participants to complete.

Design

Initially, a waitlist control design was to be employed to compare the two groups of athletes (Fall and Winter athletes), with both receiving the same intervention. All athletes would have received the intervention (although not all at the same time), and all athletes would have completed the series of questionnaires. Due to lower-than-expected response rates, the design had to be amended, as there were not enough respondents to conduct a between-groups comparison. For a between-groups comparison to be conducted, GPower software indicated a sample of 138 athletes was necessary, at a *p* value of .05, 80% power, and a medium (0.3) effect size. For a within-groups design, GPower software indicated that for a p value of .05, 80% power, and a medium (0.5) effect size, a sample of 27 athletes was necessary. As such, the present study was amended as a within-groups design. In early September 2023, all varsity athletes at the University of Windsor were given the opportunity to complete the pre-intervention questionnaire. Immediately following this two-week period, athletes competing in fall sports were given access to the six asynchronous online PST modules for a period of six weeks. Following this six-week period, while the fall sport athletes were given access to the post-intervention survey, athletes competing in winter sports were provided with the pre-intervention survey for a two-week period. Pre-intervention responses for the winter sport athletes were used

from this time point, as opposed to the initial pre-intervention survey which was provided to all athletes at the University. Following this, winter sport athletes were then given access to the online PST modules for a six-week period. At the conclusion of the six weeks, winter sport athletes were provided with the post-intervention survey. Thus, fall and winter sport athletes completed pre- and post- measures, following their respective intervention periods. In all, there were two fall sport athletes who completed pre- and post- measures, and all six PST modules: football, $n = 1$; baseball, $n = 1$. Comparatively, there were 24 athletes competing in winter sports who completed pre- and post- measures, and all six PST modules: men's basketball, $n = 11$; women's basketball, $n = 8$; men's hockey, $n = 1$; women's hockey, $n = 4$.

Measures

The Depression and Anxiety Stress Scale (DASS) is a 42 item multidimensional questionnaire designed to measure depression, anxiety, and stress (Parkitny & McAuley, 2010). Respondents indicated on a four-point scale the extent to which the statements of the previously noted emotional states applied to them over the previous week. For the DASS, there are three subscales for which mean scores were calculated: depression, stress, and anxiety. Lower mean scores at each time point reflect time point reflects a lower severity of symptoms, while higher mean scores reflect the increasing severity of symptoms (Parkitny & McAuley, 2010). Scores on each subscale can range from 0-42 (Lovibond & Lovibond, 1995). For the depression subscale: scores from 0-9 indicate a "normal" severity, 10-13 indicates a "mild" severity, 14-20 indicates a "moderate" severity, 21-27 indicates a "severe" severity, and scores 28 and higher indicate an "extremely severe" severity. For the anxiety subscale, scores from 0-7 indicate a "normal" severity, 8-9 indicates a "mild" severity, 10-14 indicates a "moderate" severity, 15-19 indicates a "severe" severity, 15-19 indicates a "severe" severity, while 20 and higher indicates "extremely

severe" severity. For the stress subscale, 0-14 indicates "normal" severity, 15-18 indicates "mild" severity, 19-25 indicates "moderate" severity, 26-33 indicates "severe" severity, while 34 and higher is "extremely severe" severity. The questionnaire has been found to be reliable in both clinical and non-clinical populations (Antony et al., 1998). In a large non-clinical sample, the internal consistencies for the depression, anxiety and stress scales have been found to be .91, .84, and .90, respectively (Lovibond & Lovibond, 1995). For the current study, the internal consistencies for the depression, and anxiety, and stress scales were as follows: .95, .82, .89.

Well-being in life was measured using the Satisfaction with Life Scale (SwLS; Diener et al., 1985), a five-item unidimensional measure assessing an individual's global judgement of life satisfaction as a whole. Participants rated the statements on a 7-point Likert scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). A study which examined the relationships between self-esteem, satisfaction with life, and the coach-athlete relationship indicated strong reliability for this measure ($\alpha = .79$, Gencer, 2021). Cronbach's alpha for the present study was found to be similar ($\alpha = 0.84$).

The Brief Resilience Scale (BRS), a six-item unidimensional questionnaire, was used to measures the ability to bounce back or recover from stress (Smith et al., 2008). Participants were required to respond to items on a five-point scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). A study conducted by Blanco-Garcia and colleagues (2021) investigated the relationships between levels of resilience and various sports and found the scale to display acceptable reliability ($\alpha = 0.74$). A similar reliability score was found for the present study ($\alpha = 0.80$).

Data Analysis

Prior to the start of data analysis, clearance was obtained from the University of Windsor's Research Ethics Board. The data were tested for normal distribution, specifically skewness and kurtosis, missing values, and outliers. To determine whether values were outliers, boxplots were assessed for each scale, with values greater than 1.5 box-lengths from the edge of the box being classified as outliers. To determine whether the online PST intervention had an effect of the mental health outcomes of varsity athletes, one-tailed paired-samples *t* tests were employed on the DASS, SWLS, and BRS. The *t* tests compared the participants at two time points, pre and post PST intervention on the mean scores of the three different measures. For the DASS, a positive *t*-value on the subscales indicates that the intervention played a beneficial role in enhancing mental health, while a negative *t*-value indicates an opposite effect. For the SWLS, a negative *t*-value indicates that the intervention had a beneficial impact on participants' satisfaction with life, whereas a positive value indicates that participants satisfaction wife life decreased following the intervention. Lastly, a negative *t*-value for the BRS indicates that participants' resilience increased following the intervention, whereas a positive value indicates the opposite. A result of $p < .05$ indicates the PST intervention had a statistically significant effect on the mental health outcomes, satisfaction with life, and resilience of participants.

Results

Upon the completion of data collection, it was necessary for the data to be cleaned. Missing values, as well as means and standard deviations were calculated for the three scales at pre- and post-intervention. Items identified as missing values items were assigned the mean value from the variable. See Table 2 for means and standard deviations. Additionally, correlational analyses were run to assess the strength and direction of the relationships. To view the correlational analyses, for pre- and post-intervention, refer to Table 3 and Table 4.

Additionally, for a summary of the paired-samples *t*-tests, refer to Table 5. Prior to module completion, participant responses to the pre-intervention survey totaled 176. In comparison, responses to the post-intervention survey were lower: (n = 59). Roughly half of the responses to the post-intervention survey were by individuals who completed all six PST modules (n = 26). Hence, the 26 participants were used in the study's subsequent analyses.

Depression and Anxiety Stress Scale

One tailed paired-samples *t* tests were conducted to determine whether there was a significant change in the pre- and post- scores of participants' mental health. No outliers were identified in the responses to the depression subscale. Additionally, the depression subscale scores violated the assumption of normality both pre- (p = .00) and post- (p = .00) intervention. Because of this, a Wilcoxon Signed-Rank test (nonparametric) was utilized. This test indicated that the median differences between pre- and post-intervention scores were equal to zero Z = 107.5, p = .54. Prior to removing outliers, no significant difference was found between the pre- (M = 20.50, SD = 6.40) and post- (M = 20.18, SD = 5.85) scores for depression. There was a non-statistically significant mean change of -0.32, 95% CI, [-1.97 to 2.63] $t(25)$ = .30, p > .05 with a small effect size (d = .06).

For the stress subscale, one outlier was identified pre-intervention, and one post-intervention. The scores were normally distributed prior to completion of the intervention (p = .06). However, the assumption of normality was violated for the post-intervention scores (p = .01). Given the data for the stress subscale violated the assumption of normality, a Wilcoxon Signed-Rank test (nonparametric) was utilized. This test indicated that the median differences between pre- and post-intervention stress scores were equal to zero: Z = 143, p = .60. Prior to the removal of outliers, there were no significant differences found between pre- (M = 23.35, SD =

6.29) and post- (M = 23.08, SD = 7.54) intervention stress scores. There was a non-statistically significant mean change of -0.27, 95% CI [-2.79 to 3.32] $t(25) = .18$, $p > .05$ with a small effect size (d = .03).

For the anxiety subscale, one outlier was identified in the post intervention scores. Scores both pre- (p = .00) and post- (p = .00) intervention violated the assumption of normality. Thus, a Wilcoxon Signed-Rank test (nonparametric) was utilized. This test indicated that the median differences between pre- and post-intervention scores were equal to zero: Z = 172.5, p = .79. Prior to the removal of outliers, there were no significant differences found between pre- (M = 19.77, SD = 4.77) and post- (M = 20.40, SD = 5.41) intervention anxiety scores. There was a non-statistically significant mean change of 0.63, 95% CI [-3.39 to 1.73] $t(22) = -.67$, $p > .05$ with a small effect size (d = -.11).

Brief Resilience Scale

A one-tailed paired samples t-test was conducted to determine if there was a significant change in participants' psychological resilience following the intervention. No outliers were identified. The assumption of normality was violated pre- (p = .03) but not post- (p = .16) intervention. Because of this, a Wilcoxon Signed-Rank test (nonparametric) was utilized. This test indicated that the median differences between pre and post intervention scores were equal to zero: (Z = 190.50), (p = .10). A statistically significant mean increase of 0.15 in scores on the BRS was found between responses at pre- (M = 3.36, SD = .43) and post- (M = 3.53, SD = .39) intervention: 95% CI [-.32 to -0.02] $t(25) = -2.36$, $p < .05$ with a small effect size (d = -.46). Increases in resilience from pre- to post-intervention for four of the 26 participants were found to be statistically reliable on the basis of reliable change ($> 1.96S_{diff}$).

Satisfaction With Life Scale

A one-tailed paired-samples *t*-test was conducted to determine if there was a significant change in participants' overall satisfaction with life following the PST intervention. No outliers were identified at either time point, and the assumption of normality was met at pre- ($p = .06$) and post- ($p = .79$) intervention. No significant differences were found between pre- ($M = 24.21$, $SD = 5.61$) and post- ($M = 24.95$, $SD = 6.01$) intervention satisfaction with life scores. Overall, a non-statistically significant mean change of 0.74, 95% CI [-2.56 to 1.08] $t(25) = -.84$, $p > .05$ with a small effect size ($d = -.17$).

Additional Findings

There are several findings that warrant discussion relating to gender differences. For participants that identified as men/boys ($n = 14$), regarding the stress subscale of the DASS, a mean difference between pre- ($M = 21.71$, $SD = 7.56$) and post- ($M = 19.51$, $SD = 4.54$) intervention approached significance $t(13) = 1.24$, $p > .05$ with a small effect size ($d = .33$). Reductions in stress levels from pre- to post-intervention for one of the 14 participants were found to be statistically reliable on the basis of reliable change ($> 1.96S_{diff}$).For respondents that identified as women/girls ($n = 12$), there was a statistically significant mean increase in SWLS scores from pre- ($M = 23.67$, $SD = 6.43$) to post- ($M = 26.52$, $SD = 5.48$) intervention $t(11) = -2.83$, $p < .05$ with a large effect size ($d = -.82$). Improvements in satisfaction with life from pre- to post-intervention for three of the 12 participants were found to be statistically reliable on the basis of reliable change ($> 1.96S_{diff}$). For a summary of gender identity findings, refer to Table 6.

Given the number of participants enrolled in the faculty of Human Kinetics ($n = 12$), it was possible to analyze differences between these athletes and those enrolled in other faculties ($n = 14$). Respondents in Human Kinetics reported a statistically significant mean decrease in stress scores from pre- (M = 25.5, SD = 6.57) to post- (M = 21.58, SD = 5.37) intervention $t(11) =$

2.37, $p < .05$ with a moderate effect size ($d = .68$). Reductions in stress levels from pre- to post-intervention for one of the 12 participants were found to be statistically reliable on the basis of reliable change ($> 1.96S_{diff}$). Additionally, there was a mean decrease in depression scores from pre- ($M = 22.84$, $SD = 6.90$) to post- ($M = 20.83$, $SD = 4.86$) intervention which approached significance $t(11) = 1.24$, $p > .05$ with a small effect size ($d = .36$). For a summary of these findings, refer to Table 7.

Discussion

The present study investigated the effectiveness of an asynchronous online PST intervention on the mental health, psychological resilience, and life satisfaction of varsity athletes. It was hypothesized that athletes who completed the online PST intervention would report lower depression, anxiety, and stress scores pre- to post-intervention. Additionally, it was hypothesized that psychological resilience would increase, along with overall satisfaction with life. The results partially supported these hypotheses. Paired-samples *t* tests and Wilcoxon Signed Rank tests indicated no significant differences in the subscales of the DASS (depression and anxiety) from pre- to post- intervention. Additionally, there were no statistically significant increases in scores on the SWLS (life satisfaction). However, there was a statistically significant mean increase in scores on the BRS (psychological resilience) from pre- to post- intervention. The non-significant findings on the mental health measures deviate from recent studies which have examined the impact of PST on domains outside of sport (Fogaca, 2021; Lebrun et al., 2019; Rice et al., 2016) in which it was found that PST can have positive implications for athletes in dealing with symptoms of anxiety and/or depression.

Regarding the statistically significant increase in athlete scores on the BRS, Sarkar (2022) has noted the substantial impact that psychological resilience can have as a buffer on

stress for athletes. Specifically, higher levels of resilience can be indicative of preventative and proactive strategies that athletes have in place to deal with stressors that may arise through sport. So, given that athletes reported an increase in scores on the BRS, in addition to the statistically significant decrease in stress scores for male athletes post-intervention, this points to the possibility that the online PST intervention played a role in enhancing psychological resilience for these participants, which in turn helped mitigate stress that these athletes were experiencing.

Regarding the non-statistically significant findings from the main analyses, there are several possible explanations as to why this was may be the case. First, in contrast to similar studies which utilized the delivery of in-person PST, the present study delivered these skills through asynchronous online modules. Delivering a program via online modules allows for the participant to complete the program at their own leisure (Ely, Munroe-Chandler, et al., 2023). While this is beneficial in reducing participant burden, it is also important to consider the impact that online delivery has on participant attrition. Generally speaking, attrition tends to be more prevalent in online learning settings compared to traditional in-person learning (Kizilcec & Halawa, 2015). When this is taken into account with the previously noted busy schedules of varsity athletes, it can become difficult to balance the responsibilities associated with their given sport, on top of the non-athlete student experience (Armstrong et al., 2015). In the present study, working with the varsity athlete population could partially explain the attrition from responses to the pre-intervention survey (n = 176) to the post-intervention survey (n = 59). Of the participants who responded to the post-intervention survey, nearly half (completed all six modules (n = 26). In contrast to studies which utilized traditional in-person PST delivery (Fogaca, 2021; Hogue, 2020), the online nature of the present study ensures that the onus is on the participant to fully participate.

The asynchronous nature of the modules is also important to consider in relation to the non-significant findings. Notably, the lack of interactions with an instructor can prove to be a barrier for students when engaging with asynchronous online material (Schoenfeld-Tacher & Dorman, 2021). Also, sport and physical activity are inherently interactive activities, so a lack of face-to-face interaction can prove to be a challenge within the field (Moustakas & Robrade, 2022). Although the online modules for the present study are asynchronous, they were designed to be interactive, so that in order to proceed through the modules, an athlete is required to personalize the contents of each module (Ely, Munroe-Chandler et al., 2023). Because of this, athletes are required to pay attention as they progress through the modules, as opposed to asynchronous learning which does not require personalization on the end of the participant.

Another possible explanation for the non-significant findings could also be partly attributed to the timing of the questionnaire delivery. For University students, there are certain points throughout a given semester that evoke heightened levels of distress, such as during examination periods (Ahmad et al., 2022). For the present study, many participants who completed the online PST modules completed the questionnaire packages at times that overlapped with midterm examination periods. Thus, it is possible that student examinations had an impact on overall scores on the DASS, more specifically, the anxiety and stress subscales, as these variables are often linked to academic demands. It is important to acknowledge the small sample size as a possible contributor to non-significant findings. In addition to being one participant short of reaching 80% power, there was an inability to conduct a between-subjects design. Similar studies have utilized a waitlist-control design, allowing for a comparison between groups at multiple time points (Fogaca, 2021). It is a possibility that utilizing such a design, which requires a larger number of participants, would have yielded significant results.

In addition to the findings from the main analyses, there were additional findings that warrant further discussion. Specifically, a comparison of athlete academic Faculties found that those who were enrolled in Human Kinetics reported a significant decrease in stress scores from pre- post- intervention, when compared to all other Faculties at the University of Windsor (social sciences, education, engineering, nursing, business, science). While no prior research has reported a finding such as this, an interpretation could be that student athletes in the Human Kinetics Faculty have had greater exposure to PST, compared to participants in other Faculties. For Human Kinetics students, classes on sport and exercise psychology are part of their core curriculum. Through this enhanced exposure, it is possible that these participants have had a greater degree of practice with these skills, subsequently leading to a more effective utilization in their daily lives.

For the SWLS, female varsity athletes reported a significant mean increase in scores from pre- to post- intervention. A possible link to this finding could be made to the overall cohesion of a given team that the athletes from the present study derived from. In team sports, there are many benefits that athletes can derive from being a part of a group. Notably, it has been proposed that at the most fundamental level, group membership satisfies a basic human drive, which is the desire to belong (Baumeister & Leary, 1995). Here, it is important to note previous research which has found the impacts of social cohesion in female teams. Specifically, qualitative research with intercollegiate Canadian coaches points to the prospect that social cohesion is more developed in female teams, and more important in how it relates to performance (Eys et al., 2015). For the present study, it is possible that social cohesion enhanced to a greater degree over the course of the season for the female sport teams, when compared to the male sport teams. It is also unclear as to if, or what specific team-building activities each team from the present study

participated in over the course of the season. Given that the nature of team-building activities can vary greatly, it is possible that the female sport teams engaged in more socially-oriented team building activities over the course of the season, as compared to the male teams (Carron et al., 2002). Given that female athletes may experience a greater degree of social cohesion through sport team membership, this can lead to a greater satisfaction of the need to belong, thus enhancing overall satisfaction with life. However, it is important to note that this is purely speculative, as the present study did not measure cohesion.

It is important to consider the duration of the intervention and how this impacted the overall results. In a similar study, Fogaca (2021) implemented a PST program for varsity athletes over a duration of five weeks, consisting of one session per week. Each session, which taught athletes skills such as positive self-talk, and anxiety regulation, lasted approximately 50 minutes. In comparison, the online modules of the present study took approximately 10-15 minutes each for athletes to complete. So, the overall duration of time that the athletes were exposed to the mental skills were notably less in the present study, when compared to Fogaca (2021). There are benefits to be reaped from both scenarios. Having PST sessions of longer durations can provide athletes with more information about the specific skills, and how to incorporate the skills into practice. Comparatively, the asynchronous online modules from the present study allow for a time-convenient resource for athletes. One which can be accessed at their own leisure and navigated at their own pace. An important consideration for future research would be to explore the preferences athletes have regarding the time and type of intervention they receive. That is, if athletes prefer a more condensed learning experience, where PST can be delivered in a limited time frame, as it was in the present study. Or, if athletes prefer to have the skills they learn to be expanded upon and covered in greater detail. The present study differed from previous research,

in the sense that the PST program was delivered online, while there has also not been a consistent set of skills which have been delivered across studies (i.e., the impact of social support). Considering that online PST is still in its infancy, further research is needed to investigate its effectiveness in relation to mental health outcomes.

Previous researchers have demonstrated the potential for sport-specific PST to be transferred to everyday life (Beauchemin, 2014; Estanol et al., 2013). Additionally, preliminary findings in this area also suggested that the transfer of said skills could result in improvements of mental health outcomes (Fogaca, 2021). An additional consideration as to why the present study did not yield significant improvements in participants' mental health, may be message framing. While PST programs typically include detail outlining the incorporation of skills into daily life, many programs place a much greater emphasis on using skills within sport. So, while individuals may learn skills that can be applied to everyday life, they may not understand how or when this can be done. For example, Beauchemin (2014) conducted a PST initiative for varsity athletes which also emphasized coping with stressors outside of sport. While mental health outcomes were not measured pre- and post- intervention, it was found that following the program, athletes presented a decreased stigma towards mental health interventions. In a similar fashion, Fogaca (2021) provided athletes with PST, while also describing how these skills can be applied to cope with mental-health related scenarios, such as academics, and interpersonal relationships. Thus, this again brings to light the lack of clarity that athletes may have experienced in terms of translating the skills they were learning into aspects of everyday life.

Future research could alter the messaging of the present online modules to contain messaging/instruction on how the skills contained within the modules can be applied to domains outside of sport. As an example, athletes could be encouraged to monitor the valence of their

self-talk in everyday situations (driving, during school) that may be perceived as stressful. This awareness of the valence of self-talk can lead to subtle changes that an athlete can make in these different situations, allowing for potential changes. An additional example could be made for the relaxation module. When teaching athletes about deep breathing, a simple message could be included at the end of the module, encouraging athletes to incorporate deep breathing when situations outside of sport cause anxiety, such as prior to an exam.

Previous research has noted that mental health topics are heavily stigmatized within sport, and athletes often present with lower help-seeking rates when compared to the general population (Rice et al., 2016). As previously noted, PST programs can help to de-stigmatize mental health interventions for athlete populations. However, it would also be worthwhile to investigate the impact of a PST intervention on additional mental health-related variables. For example, Wahto (2016) found that student athletes' social and self-stigma were significant predictors of attitudes towards help-seeking behaviours. However, it was found that athletes were more willing to seek external support if a family made a referral, as opposed to a teammate or coach. This finding came despite the reality that many athletes spend a larger proportion of time with teammates and coaches, than family members. So, future research should investigate developing an intervention which targets the team social environment. While the present study provided the participants links to mental health resources within the questionnaire package, no mention to such resources were provided within the modules themselves. Additionally, links to mental health resources could be added at the end of each module, perhaps as a cue to the athlete completing the module to consider seeking external mental health support, as previous research has supported the importance of cues to action for athletes to have a greater likelihood of seeking mental health support (Bird et al., 2020)

Limited research has used the DASS in university samples. One study of note examined the shortened DASS-21 in a sample of undergraduate students at the Canadian Memorial Chiropractic College (Meckamalil et al., 2022). Due to this, it is hard to generalize the findings of the present study to other populations. Additionally, the sample size of the present study was considerably smaller when compared to that of Meckamalil (2022), who had a sample of 766 students. Thus, an important future consideration is for the DASS to be utilized more frequently with university students. Additionally, the DASS has not been extensively examined with athlete populations. So, it is important for future research to also consider using this questionnaire with athletes, and more specifically student athletes. This is an important consideration, as it is well documented that athlete populations can significantly differ from the general population in terms of help-seeking behaviours (Robinson et al., 2016) Additionally, while there have been mixed findings regarding the prevalence of anxiety and depression symptoms amongst athlete populations (Proctor & Boan-Lenzo, 2010; Yang et al., 2007), further research is needed to uncover how this demographic differs from the general population.

Generally, there is not a consistently used measure among studies which have investigated the mental health of varsity athletes. The Beck Depression and Anxiety Inventories have been used quite frequently with the university athlete population (Cox, 2015; Fogaca, 2021). However, measures such as these fail to take other aspects of mental health into account, such as stress. As such, it is hard to compare the findings of the present study to other intervention studies which have been conducted with athletes. Future studies should consider using measures such as the DASS and brief resilience scale, as stress and psychological resilience are imperative to athlete populations (Sarkar & Page, 2022).

Regarding gender differences, one of the main findings from the present study was that there was a statistically significant mean increase in SWLS scores amongst female athletes. Previous work which has examined the overall life satisfaction in a Canadian university sample has found that there are numerous important considerations. For example, students who have a higher GPA, and indicated a greater degree of satisfaction with their academic experience, were more likely to report a higher satisfaction with life (Chow, 2005). For the present study, there are several possible explanations as to why only female athletes yielded a statistically significant mean increase in SWLS scores. It is important to consider the overall sample size, as well as the teams from which the athletes participated. Of the female participants, the majority represented from two teams (basketball and hockey). So, it is possible that team factors played a role. One possibility is the level of psychological safety within a given team. This has been noted to be a precursor to a variety of individual outcomes, such as personal development and mental health (Vella et al., 2022). So, a team which presents a more psychologically safe environment, is more likely to yield more positive outcomes for individual athletes involved. Additionally, cohesion is an important factor to consider in relation to positive outcomes in sport. As it has been noted that enhanced cohesion within teams can lead to greater quality of life, and improved social relations amongst team members (Pedersen et al., 2017). Comparatively, the majority of male athletes came from a single team (basketball). With these considerations in mind, future studies should consider investigating the correlations between additional variables, such as student GPA, with overall satisfaction with life. Further, a larger sample size, with athletes from a wider sample of teams, and perhaps institutions, might provide additional insights into these findings.

The finding that male athletes reported a statistically significant mean decrease in overall stress scores does not come as a surprise, as previous research has highlighted the beneficial

effects that PST can have on stress levels of athletes relating to sport, and additional psychosocial aspects of life (Hogue, 2020). Of note, Hogue (2020) also found that in a control group, female athletes reported higher levels of cognitive and somatic anxiety compared to their male counterparts, while no such differences were found in the PST group. However, it remains unclear as to why there were no statistically significant differences for female athletes. There are several considerations worth noting. First, extensive research has examined the relationship between stress and athletic performance (Mellalieu et al., 2006). This includes the demands that athletes encounter (Noblet & Gifford, 2002) and coping strategies that athletes employ to deal with such stressors (Nicholls et al., 2005). Given the amount of research that has investigated the impact that PST has on stress, it comes as no surprise that stress levels decreased in the present study following the intervention. However, it is unclear as to why there was a statistically significant decrease amongst male participants, but not female participants. Again, it is important to consider the dynamics of the sample. Previous research has identified the positive impacts that participation in team sports can have on individual functioning, especially regarding stress relief (Thorpe et al., 2014). Given the current study contained participants predominantly from three varsity teams (men's basketball, women's basketball, women's hockey), it is a possibility that the dynamics of each given team had a considerable influence on the stress scores of athletes.

The present study was not without its limitations. First, given its correlational nature, it is impossible to rule out the possible influence of confounding variables. Future studies should consider employing a waitlist-control design, as this would help to mitigate the possible influence of confounds. Additionally, a larger sample size would help to ensure that the findings are reflective of a true effect of the intervention. Attrition was also a limitation of the present study. Given its online nature, participants from the present study were left to complete its

contents in their own time. This differs from studies that have utilized traditional face-to-face PST, where time is specifically allocated for athletes to participate. Having previously mentioned the busy schedules that varsity athletes have, having them complete a study's contents in their own time makes the probability of all measures being fully completed less likely. While the present study had 26 full participants, a total of 27 were needed to achieve 80% power. As such while statistical power was not achieved, an adequate sample size was reached.

With the present study being conducted within Canada, it adds to the existing body of literature which has investigated the relationship between PST and mental health amongst athletes, primarily in the United States. It is important to note several differences which exist between Canadian and American varsity athletes, which highlights the importance of further research needing to be conducted with Canadian populations. First, American varsity athletes have a greater breadth of mental health resources at their disposal. This includes a greater number of mental health care providers, and referral systems (Moreland et al., 2018). Second, American varsity athletes have a greater ease of access to sport psychology practitioners. While some Canadian varsity programs have access to sport psychology practitioners, these individuals often do not have the requisite credentials to provide athletes with mental health support. Comparatively, many American varsity programs work with sport psychologists who have training in providing PST, as well as mental health support (Moreland et al., 2018).

While designed with the intent of sport performance enhancement, these asynchronous online modules educate the athletes about each mental skill, and more importantly, provide direction for acquisition and implementation of the skills in sport and life. This study is novel in that the PST program consists of a greater number of mental skills as compared to similar studies (Fogaca, 2021- four skills). Moreover, the online delivery and concise nature of the modules

(approximately 10-15 minutes each to complete) is unique when compared to other studies conducted in person, that delivered interventions which entail a much larger time commitment (Fogaca, 2021 – four sessions each lasting 50 minutes). Given the mental health crisis noted on Canadian university campuses (Mofatteh, 2020), to our knowledge, this is the first study to examine the impact of a PST program on mental health outcomes amongst a Canadian population, specifically with university athletes. It is important to find alternative means by which to provide mental health resources (sport and life-related coping skills) to student athletes, especially when considering the low treatment seeking behaviour amongst varsity athletes for mental health concerns (Armstrong et al., 2015). The current study's online module format will help to fill that need.

Conclusion

Varsity athletes continue to present with low mental health treatment seeking rates, while also navigating the stigmatization of mental health within elite sport (Armstrong et al., 2015). Interventions that consider the barriers student athletes face in seeking mental health support are important, as normative methods of mental health support, such as counselling, are difficult to access on university campuses (Huang et al., 2018). The present study assessed the effectiveness of an asynchronous online psychological skills training intervention on the mental health of varsity athletes. While no statistically significant findings were present in the DASS, or SWLS, it was found that athletes reported a statistically significant mean increase in scores on the BRS. Additionally, male athletes reported significant decreases in stress levels following the intervention, while female athletes reported a significant increase in overall satisfaction with life. Further research is needed to determine the impact of sport-oriented PST on the mental health of athletes, which also utilizes a greater, and more diverse sample.

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Table 1
Sociodemographic Characteristics of Participants

Characteristic	Completed Modules	
	n	%
Sport		
Men's Basketball	11	42.3
Women's Basketball	8	30.8
Men's Hockey	1	3.8
Women's Hockey	4	15.4
Football	1	3.8
Baseball	1	3.8
Gender Identity		
Woman/Girl	12	46.2
Man/Boy	14	53.8
Year of Study		
One	7	26.9
Two	6	23.1
Three	8	30.8
Four	4	15.4
Five	1	3.8
Worked With Sport Psychology Consultant		
Yes	11	42.3

No	15	57.7
Race		
African American	5	19.2
Latin American	1	3.8
White/Caucasian	19	73.1
Other	1	3.8
Faculty		
Social Sciences	4	15.4
Education	1	3.8
Engineering	1	3.8
Human Kinetics	12	46.2
Nursing	1	3.8
Business	5	19.2
Science	2	7.7
Year on Varsity Team		
One	9	34.6
Two	6	23.1
Three	9	34.6
Four	2	7.7

Table 2

Means, Standard Deviations and Reliabilities Pre- and Post- Intervention

Scale	Pre-Intervention			Post-Intervention			Overall
	Mean	*SD*	α	*Mean*	*SD*	α	α
DASS - Depression Subscale	20.50	6.40	.97	20.18	5.85	.93	.95
DASS - Anxiety Subscale	19.77	4.77	.83	20.40	5.41	.81	.82
DASS – Stress Subscale	23.35	6.29	.90	23.08	7.54	.88	.89
BRS	3.36	.43	.88	3.53	.39	.69	.80
SWLS	24.21	5.61	.89	24.95	6.01	.81	.84

Note. DASS = Depression and Anxiety Stress Scale; BRS = Brief Resilience Scale; SWLS = Satisfaction with Life Scale.

DASS scores range from 0-42; BRS scores range from 1-5; SWLS scores range from 5-35.

Table 3

Pearson Correlations Among Scales for Pre-Intervention

Scale	1	2	3	4	5
1. DASS- Depression Subscale	1.00	.90**	.73**	-.17**	-.30
2. DASS – Anxiety Subscale		1.00	.74**	-.21**	-.34
3. DASS – Stress subscale			1.00	-.04**	-.44*
4. BRS				1.00	.16
5. SWLS					1.00

Note. DASS = Depression and Anxiety Stress Scale; BRS = Brief Resilience Scale; SWLS = Satisfaction with Life Scale.

*Correlation is significant at the .05 level; **Correlation is significant at the .01 level.

Table 4

Pearson Correlations Among Scales for Post-Intervention

Scale	1	2	3	4	5
1. DASS- Depression Subscale	1.00	.77**	.74**	-.58**	-.39
2. DASS – Anxiety Subscale		1.00	.82**	-.56**	-.16
3. DASS – Stress subscale			1.00	-.31	-.15
4. BRS				1.00	.04
5. SWLS					1.00

Note. DASS = Depression and Anxiety Stress Scale; BRS = Brief Resilience Scale; SWLS = Satisfaction with Life Scale.

*Correlation is significant at the .05 level; **Correlation is significant at the .001 level

Table 5

Summary of Paired Samples T-Test

Scale	*M*	*SD*	95% Confidence Interval Lower	Upper	Test Statistic	*df*	Sig. (1-tailed)
DASS - Depression*	.32	5.69	-1.97	2.63	.30	25	.39
DASS – Anxiety*	-.63	5.80	-2.97	1.71	-.55	25	.29
DASS – Stress*	.26	7.56	-2.79	3.32	.18	25	.43
BRS*	-.17	.37	-.32	-.02	-2.36	25	.01**
SWLS	-.74	4.50	-2.56	1.08	-.84	25	.20

Note. DASS = Depression and Anxiety Stress Scale; BRS = Brief Resilience Scale; SWLS = Satisfaction with Life Scale.

* DASS & BRS did not meet normality

** $p < .05$.

Table 6

Means and Standard Deviations by Gender Identity

Scale	Pre-Intervention		Post-Intervention	
	M	*SD*	*M*	*SD*
		Men/Boys		
DASS – Depression Subscale	18.83	5.37	18.08	4.27
DASS – Anxiety Subscale	19.08	5.02	18.85	4.56
DASS – Stress Subscale	22.23	7.50	19.23	4.60
BRS	3.47	.47	3.59	.47
SWLS	25.18	5.27	22.73	6.80
		Women/Girls		
DASS – Depression Subscale	22.67	7.30	22	7.06
DASS – Anxiety Subscale	20.40	4.62	22.60	6.69
DASS – Stress Subscale	25.25	4.11	27.25	8.34
BRS	3.27	.34	3.45	.31
SWLS	24.36	6.25	26.64	5.73

Note. DASS = Depression and Anxiety Stress Scale; BRS = Brief Resilience Scale; SWLS = Satisfaction with Life Scale.

Table 7

Means and Standard Deviations for Human Kinetics and Non-Human Kinetics Students

Scale	Pre-Intervention		Post-Intervention	
	M	*SD*	*M*	*SD*
	Human Kinetics Students			
DASS – Depression Subscale	23.09	7.18	20.55	4.99
DASS – Anxiety Subscale	21.30	5.29	19.70	4.19
DASS – Stress Subscale	25.50	6.57	21.58	5.37
BRS	3.24	.42	3.35	.30
SWLS	25	6.24	24.90	7.95
	Non-Human Kinetics Students			
DASS – Depression Subscale	18.77	5.53	19.61	6.99
DASS – Anxiety Subscale	18.38	4.13	19.82	6.41
DASS – Stress Subscale	22	5.52	24.46	9.36
BRS	3.50	.39	3.68	.42
SWLS	24.58	5.40	24.50	5.27

Note. DASS = Depression and Anxiety Stress Scale; BRS = Brief Resilience Scale; SWLS = Satisfaction with Life Scale.

REVIEW OF LITERATURE

Introduction

Many individuals enrolled in post-secondary education struggle with mental health concerns (Sontag-Padilla et al., 2018). This can largely be attributed to the many stressors that students experience, such as course demands, financial concerns, and being away from home (Giamos et al., 2017). Importantly, Canadian University students present greater levels of psychological distress as compared to the general population (Robinson et al., 2016). Anxiety and depression are two of the most preeminent mental health concerns amongst Canadian post-secondary students (Mofatteh, 2020). Anxiety is generally viewed as a state which may stem from an individual's perception of threat (Epstein, 1985), and has been compared to a discomforting feeling of unfocused arousal (Dobson, 1985). Comparatively, depression is marked by a variety of symptoms, including feelings of worthlessness, suicidal ideation, and apathy (Paykel, 2008).

Student athletes are a unique subset of the University student population, notably because they are presented with the same set of challenges that every University student is presented with (course load, financial obligations) while also balancing the time commitment of varsity sport participation. These heightened responsibilities can leave varsity athletes predisposed to experiencing greater mental health concerns than their non-athlete peers (Auerbach et al., 2018). This is troubling, especially because treatment seeking for mental health concerns amongst elite, and varsity athletes is quite low (Chew & Thompson, 2014; Wahto et al., 2016). Knowing this, it is important to provide varsity athletes additional resources which can be applied to their everyday lives to enhance overall well-being. One method which this can be achieved is through a Psychological Skills Training (PST) program. These programs offer a structured and consistent

delivery of psychological skills to athletes, which while traditionally conceptualized to enhance athletic performance (Boutcher & Rotella, 1987), have recently been delivered in an effort to improve mental health (Fogaca, 2021).

Mental Health

The World Health Organization (WHO) defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (Kühn & Rieger, 2017, p. 887). Despite this clear definition of health, the global research community has been involved in an ongoing effort to operationalize the definition of mental health, and how it does not represent a sole absence of mental illness (Galderisi et al., 2015; Manwell et al., 2015; Westerhof & Keyes, 2010). Rather, mental health is much more dynamic, and is made up of a variety of emotional states and cognitions. For instance, people who experience good mental health often experience feelings of sadness or anger (Galderisi et al., 2015). Part of the difficulty in adopting a universal definition of mental health, is navigating the many cultural differences that exist throughout the world. The definition of mental health will differ from person to person, as "the self" is an important component of the definition, and how each individual interprets their own reality (Manwell et al., 2015). Moreover, individuals may be languishing, in the sense that they represent an absence of well-being. Even with an absence of well-being, this does not necessarily mean that an individual may present any symptoms of a mental illness, such as depression (Joshanloo & Nosratabadi, 2009). It is possible for individuals to experience some symptoms of a mental illness, such as anxiety or depression, while not meeting the threshold for a clinical diagnosis (Parker & Paterson, 2015).

Mental Health Defined

A vast number of people across the globe struggle with mental illness, which represents nearly 13% of the global burden of disease (Thyloth et al., 2016). Canada is no exception, as mental health concerns are prominent throughout the population. Between 2016-2017, 5.5 million Canadians received services for a mental illness (*Canadian Chronic Disease Surveillance System (CCDSS)*, 2017). This number is concerning, as it only represents those who sought treatment, and does not include those who went untreated. Mental illness can impact one's cognitions, emotions, and behaviours, and ultimately one's ability to thrive in life (American Psychiatric Association [APA], 2013). In their definition of mental health, the WHO posits that it encompasses a state of mental well-being, allowing individuals to cope with life stressors, realize individual abilities, and represents much more than the mere absence of a mental disorder (World Health Organization, 2022). When an individual's mental health is impaired, in conjunction with a lack of adequate support, their well-being can deteriorate. Traditionally, mental health was viewed as a state of optimal functioning, devoid of any negative emotional states. Conversely, mental illness was regarded as a state of suffering, where a given person is unable to experience the slightest sense of positive being (Keyes, 2002). Presently, however, there is a greater appreciation of mental health and illness existing on a continuum. On this continuum, are a wide range of experiences and emotional states, with some individuals warranting a clinical diagnosis for a mental health disorder, while others may experience fleeting symptoms of these disorders, but otherwise function at an optimal state (Joshanloo & Nosratabadi, 2009). With this, it is important to recognize that a given individual can experience symptoms of anxiety and depression that, while may not warrant a diagnosis for a clinical disorder, are perceived sources of impairment.

Post-Secondary Students' Mental Health

Post-secondary school can be a time when a variety of stressors and new experiences present themselves. These new factors can work to negatively impact a student's mental health (Linden & Stuart, 2020). In 2019, it was reported that 35% of Canadian University students reported symptoms of either anxiety or depression impacting their academic performance over the previous 12 months (ACHA, 2016). Mental health concerns amongst College and University student populations are paramount when considering the potential consequences of neglecting such concerns. Enrollment in university presents a variety of stressors that can impact a student's mental health. For example, balancing fixed deadlines and final examinations, with other outside responsibilities such as work, can create added distress. This, coupled with the fact that many students attend university at the peak age in terms of onset of mental health disorders, can create a high prevalence of those who suffer from non-clinical symptoms of anxiety and depression. Previous research has found that student success and mental health are highly correlated, meaning, those who experience worse mental health tend to fare more poorly than their peers who are in better mental health (i.e., peers who present less symptoms of depression) (Choi et al., 2010). While University counselling centres can be effective in helping students identify, and work through mental health concerns, the reality is that few students access, or have access to these services (Jaworska et al., 2016). There is a need to increase accessibility to these services, while also working with other student services to facilitate referral to additional programs that may be of benefit to students.

Student Athletes' Mental Health

Student athletes are at just as great of a risk of developing symptoms of anxiety and depression as their fellow students (Wolanin, 2016). In fact, the responsibility of balancing school and athletic demands for student athletes can leave them predisposed to experiencing

greater mental health concerns, in terms of a greater number of symptoms of anxiety and depression (Auerbach et al., 2018). Student athletes endure a high number of daily stressors, including, but not limited to, a full course load with adequate grades to maintain eligibility, frequent travel for competitions, and physical conditioning to meet the demands of their sport (Ferrante & Etzel, 2009). Even with the increased number of stressors that student athletes face, they are less likely to seek services at University counselling centres compared to non-athletes (Chew & Thompson, 2014). This could be attributed to perceived stigma surrounding the access to mental health services, or due to a perceived lack of time for seeking help (Kaier et al., 2015). This is troubling, especially when considering the traditional athletic environment, where athletes are expected to be mentally tough, and exhibiting symptoms of mental health concerns can be viewed as a weakness (Armstrong, 2015). This perceived weakness plays a role in the stigma that surrounds receiving mental health treatment, as treatment seeking amongst elite athletes for mental health concerns is low (Wahto et al., 2016). Another important consideration is the perception that student athletes have regarding their coaches' views on mental health. Athletes may worry that if their coaches find out that they're seeking mental health services, this will play a role in the coaches' decision regarding athlete play time (Gulliver et al., 2012).

The need for a new definition of mental health is applicable within the athletics environment, in addition to, the need for a normalization of both experiencing symptoms, and treatment-seeking. Additionally, one's coping skills has been found to reflect attitudes towards seeking mental health support (Castaldelli-Maia et al., 2019). That is, athletes who demonstrate stronger positive coping skills have been found to hold attitudes that are more supportive of seeking mental health support (Kroshus, 2017). As a result of the unique environments in which athletes are exposed, involving, but not limited to varying degrees of adversity, and heightened

external pressure to perform, it can be difficult to differentiate the normal human experience, from that of clinical mental health disorders (Henriksen et al., 2020). Athletes are constantly involved in situations that predispose them to experiences that can facilitate negative emotional states. The different situations that athletes find themselves in can create environments where, while an athlete may not experience a clinical disorder, could very well experience symptoms of anxiety or depression. In an athletic setting, the line between moderate symptomology and severe impairment can often become blurred (Roberts et al., 2016). Within athletic contexts, it is typical to experience ample worry, nervousness, among other performance related traits. That being said, a given athlete may experience negative emotional states to a much greater extent than another athlete with similar performance contexts but may associate these emotional states with the normality of performance in sport. Thus, it is important to provide athletes with the necessary skills to deal with these situations, normalize treatment seeking, and foster a greater understanding of what defines a normal athletic experience, versus one that renders an athlete with amplified angst.

Anxiety and Depression

In 2019, anxiety and depressive disorders were the two most prominent mental disorders across the globe, making up 60% of all reported mental disorders that year (WHO, 2022). Anxiety can be defined as an emotional state caused by a potentially negative situation, with the probability of such a negative event occurring being low or uncertain (Takagi et al., 2018). Traditionally, two forms of anxiety have been defined, with the main differentiating factor between the two being the duration of their effect (Daviu et al., 2019). Regarding anxiety in sport, it can present itself in three types of interrelated experiences. The first, state-like anxiety, describes how nervous or worried an individual is in a specific situation that they perceive as

threatening, such as in an important match or game (Hanin, 2010). The second is trait-like experiences, which can be described as stable patterns of emotional response by an individual in similar situations. For example, a basketball player feeling profound anxiety each time they attempt a free throw. Last are meta-experiences, which characterize a person's awareness of the harmful, or helpful effects that anxiety has upon performance. For example, a soccer player may perceive a heightened sense of anxiety as beneficial while their team has a lead in the game.

Depression is marked by feelings of hopelessness, fatigue, depressed mood, as well as a lessened interest in or pleasure gained from activities (American Psychiatric Association, 2013). Recent estimates indicate that 12-32% of the population in developed countries, such as Canada, have anxiety or depressive symptoms (Haller et al., 2014). In all, more than two thirds of those with mental health concerns display either anxiety or depressive symptoms (Moffitt et al., 2007). While there is a general lack of consistency in findings regarding depression levels of varsity athletes, prevalence rates are estimated to range from 15.6% to as high as 21% (Proctor & Boan-Lenzo, 2010). While the prevalence rates of mental health concerns of varsity athletes have not been found to necessarily exceed the rates of their non-athlete peers, it has been noted that athletes often have additional demands, such as balancing school and athletic demands, while also underreporting symptoms of anxiety and depression (Yang et al., 2007).

Measures

In terms of measuring anxiety and depression symptoms, there are several questionnaires that have been predominantly used in the literature. Importantly, these questionnaires are not solely utilized to measure clinical depression and anxiety, but rather tap into symptoms of these mood states over the course of a given period.

Anxiety. The state-trait anxiety inventory (STAI; Spielberger, 1983) is a self-report measure that was developed to measure the presence and severity of state and trait anxiety symptoms (Julian, 2011). It contains 40 items, with 20 allocated to each the state and trait subscales. Responses for the state subscale range from 1 (*not at all*) to 4 (*very much so*), while responses for the trait subscale range from 1 (*almost never*) to 4 (*almost always*). Range of scores for each subset is 20-80, with a higher score indicating greater anxiety. The scale has been shown to have high internal consistency, but concerns have been raised regarding its validity, particularly the trait subscale (Julian, 2011).

The Hospital Anxiety and Depression Scale- Anxiety (HADS-A; Snaith, 2003) is a seven-item measure that is specifically designed to assess generalized anxiety, specifically in medically ill patients (Julian, 2011). Respondents are asked to indicate how they currently feel on a 4-point likert scale, ranging from 0 to 3. Anchor points vary depending on the item, with 3 sometimes representing greater anxiety, and sometimes lower anxiety. This scale has been found to demonstrate high internal consistency, but concerns have been raised regarding its validity with certain populations, such as with the elderly (Julian, 2011).

The Beck Anxiety Inventory (BAI; Beck et al., 1988) is a 21-item self-report questionnaire that measures anxiety symptoms over the course of the previous month. Responses for each item range from 0 (*not at all*), to 3 (*severely, it bothered me a lot*). Scores are generated by summing across all 21 items, creating a single score that is generally interpreted as follows: 0-21 (low anxiety), 22-35 (moderate anxiety), 36 and above (potentially concerning levels of anxiety). It has been found to demonstrate high internal consistency, as well as sufficient test re-test reliability. Additionally, the BAI has been shown to have high levels of convergent and

discriminant validity (Fydrich et al., 1992). It is easily administered and has demonstrated sensitivity to change (Julian, 2011).

Depression. The Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) was designed to specifically identify depressive symptoms among the general population (Shafer, 2006). Its items, which were selected from previously validated depression scales, primarily measure affective and somatic depressive symptoms. It contains 20 items, with a possible range of 0-60 across all items, with higher scores indicating more symptoms (Radloff, 1977). Although this is not intended as a clinical diagnostic tool, its use in the general population has been well supported, having high internal consistency, good test-retest reliability, as well as excellent concurrent and construct validity (Radloff, 1977). However, it is noteworthy that the CES-D may not be specific for depression, and does not take certain depressive symptoms into account, such as suicidal ideation. It has been described as more of a measure for general distress, rather than depression (Smarr & Keefer, 2011).

The Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960) contains 17 items that pertain to depressive symptoms over the previous week. However, it is designed to be filled out by a clinician, and is not a self-report measure (Shafer, 2006). Specifically, it is designed to be used by a health-care professional during a clinical interview with a patient who has already been diagnosed with depression (Sharp, 2015). Developed in the 1950's it is still widely used to measure the effectiveness of antidepressant medications that are in clinical trials (Sharp, 2015). Compared to the BDI, a meta-analysis has suggested that following therapeutic treatments, the HRSD is more sensitive to change on re-testing (Edwards et al., 1984), which is a possibility as to why it has been more widely used in clinical trials.

The Zung Self-Rating Depression Scale (SDS; Zung, 1965) is a self-report measure that is used to examine the severity of depression amongst patients. Its primary use has been in clinical research as a means of monitoring treatment effectiveness (Shafer, 2006). It contains 20 items with responses ranging on a four-point scale (1 = experiencing symptoms "a little of the time, 4 = experiencing symptoms "most of the time"). Support for its concurrent and discriminant validity has been noted in the literature, although its construct validity has been called into question (Thurber et al., 2002).

The Beck Depression Inventory II (BDI-II; Beck et al., 1996) is a 21-item questionnaire on a four-point scale, ranging from 0 (*symptom absent*) to 3 (*severe symptoms*). It measures the severity of depressive symptoms and attitudes over the previous two weeks and is one of the most popular questionnaires which measures depressive symptoms, having seen widespread use in both clinical and non-clinical settings. The questionnaire is scored by summing the 21 items, creating a total that is generally interpreted as follows: 0-13 (minimal range depression), 14-19 (mild depression), 20-28 (moderate depression), and 29-63 (severe depression). High concurrent and criterion validities have been found between the BDI-II and other popular measures of depression symptoms, with the BDI-II also demonstrating high construct validity (Jackson-Koku, 2016). Additionally, high one-week test-retest reliability has been demonstrated in clinical samples (Gebrie, 2018). It has been used various times with non-clinical athlete populations and has demonstrated to be reliable and valid in its use (Fogaca, 2021; Hammond et al., 2013).

Coping

Given the varying degrees of stress that athletes are often exposed to, how an athlete copes with such stress is an important predictor of their interpretation of the given situation. Coping is described as an individual's cognitive and behavioural effort to manage sources of

internal and external stress (Lazarus & Folkman, 1984). Here, a distinction needs to be made between problem-focused, and avoidant styles of coping. Problem-focused coping reflects strategies that are employed in an attempt to overcome stress (Hill et al., 2010); while avoidant coping strategies reflect an individual's attempt to detach themselves from the coping process. An example of a problem-focused coping strategy would be active coping, where an individual takes intentional behavioural steps to remove the stressor, while an example of an avoidant coping strategy would be a refusal to acknowledge a stressor, also known as denial. Though athletes can differ in terms of how they cope with a stressor, the literature overwhelmingly suggests that when coping is high, stress will be lower, and overall well-being and life satisfaction will be enhanced (Lazarus & Folkman, 1984; Rose et al., 2023).

As athletes navigate the various stressors and challenges that practice and competition present, they must develop and utilize coping skills to meet these demands (Crocker et al., 1988; Gould et al., 1993). The ability to cope in sport has notably been linked to enhanced performance, as those who employ maladaptive (ineffective) coping strategies can suffer from performance detriments (Anshel et al., 2001). In addition to performance benefits, it has been established that athletes who are able to apply effective coping strategies demonstrate greater positive affect, in the form of pleasurable engagement in sport (Crocker & Graham, 1995). Conversely, negative affect, an aspect of general subjective distress, has been found to be positively related to traits such as self-blame and behavioural disengagement. Altogether, athletes who can effectively cope with the stressors involved with sport are more likely to experience greater well-being in their participation (Rose et al., 2023).

Measures of Coping and Life Satisfaction in Sport

The Satisfaction With Life Scale (SWLS) is a five-item measure of subjective well-being (SWB) (Pavot & Diener, 2008). It has been used in numerous studies that have assessed the life satisfaction component of SWB and has consistently demonstrated good psychometric properties (Pavot & Diener, 1993). The temporal stability of life satisfaction judgements has been called into question in the past, due to the fact that one's current mood can be a potential source of influence on judgements of life satisfaction. However, there is evidence to support that while current mood can sporadically influence perceptions of life satisfaction, this effect is not strong (Eid & Diener, 2004). In terms of an individual's interpretation of life satisfaction, a number of personality and situational factors influence one's judgement of life satisfaction. This stipulates that life satisfaction is very broadly based, and the SWLS can be effective in measuring change following an intervention (Pavot & Diener, 2008). Additionally, the broad nature of the scale means it may not be extremely sensitive to interventions, when used in isolation, and thus should be paired with other measures that are focused on the domain of the intervention. Surujlal et al. (2013) used the scale in a study which examined the perceived stress and coping skills of varsity athletes, and their relationship with life satisfaction. It was found that as athletes' levels of coping increased, perceived levels of stress decreased, resulting in an increased satisfaction with life.

Treatment

Anxiety and depressive disorders, along with musculoskeletal disorders, are among the most prevalent reasons for ill-health (Martinsen, 2008). Regarding anxiety disorders, there is evidence to suggest that there exists a large degree of undertreatment (Bandelow et al., 2017). Treatment plans vary from individual to individual, with the most common methods being psychotherapy, pharmacotherapy, among others (Bandelow et al., 2017).

Regarding pharmacotherapy, many studies have provided support for the efficacy of medications in treating a variety of anxiety disorders, including generalized anxiety disorder, and obsessive-compulsive disorder (Bandelow et al., 2017). In a meta-analysis of all available drug studies on anxiety disorders, the available medications showed substantially large differences in pre-post effect sizes (Bandelow et al., 2015). Aside from the many benefits that pharmacotherapy can provide individuals who have anxiety disorders, there are some precautions that must be noted. First, it is possible for some individuals to experience certain side effects from medications such as jitteriness, weight gain, cardiovascular side effects, among others (Bandelow et al., 2017). Individuals may experience withdrawal symptoms when a dose reduction occurs, or they stop taking the drug altogether. Further, certain medications can be involved in pharmacokinetic interactions, such as enzyme inhibition.

Alongside pharmacotherapy, psychotherapy is one of the most prominent treatment methods for those with anxiety disorders. Cognitive behavioural therapy (CBT) is a predominant form of psychotherapy. Today, CBT is considered by many as the most evidence-based form of treatment for a variety of psychological disorders (Hofmann et al., 2013). Importantly, CBT is viewed as the overriding approach of choice within the field of sport psychology (Turner et al., 2023). With this, practitioners apply a multi-layered lens in assessing a given athlete's situation, through which cognition, behaviours, and emotions interact to affect performance, and more importantly, well-being within sport. In applying CBT, sport psychology practitioners use it as a form of cognitive behavioural training, whereby athletes work to alter dysfunctional performance-related behaviours, into functional behaviours (Gustafsson & Lundqvist, 2016). CBT does not entail a single approach, rather, it represents a variety of interventions that consist of a therapeutic approach. While there are a variety of CBT protocols, a unified similarity across

treatments is the assumption that maladaptive cognitions are causally linked to emotional distress. So, by modifying these cognitions, distress that an individual experiences can be decreased (Hofmann et al., 2010). The behavioural aspect of CBT is commonly employed in treating and improving anxiety symptoms (Fenn & Byrne, 2013). Generally, the end goal of behavioural techniques is to aid an individual in tolerating their symptoms of anxiety. This can be achieved through several behavioural techniques, including progressive relaxation training, and other breathing exercises.

Regarding treatment for depression, pharmacological options are one of the most predominant. Medications such as fluoxetine have been adopted in medical settings and represent a much lower risk factor to patients compared to older medications (Goldman et al., 1999). Psychotherapies are another form of treatment, which have been shown to be greatly effective. Particularly, cognitive behavioural and interpersonal therapy have been shown to be equal in efficacy to antidepressant medication for mild-to-moderate depression (Jarrett & Rush, 1994). CBT has been used in a wide variety of situations, and this extends to the athletic domain as well (Gordon, 1992). Clinicians and counsellors have implemented CBT in their work with athletes as a means of altering athletes' attitudes to their approach to training and competition, and the cues they use in these settings which influence performance (Kirschenbaum & Bale, 1984).

Psychological Skills

Psychological skills training involves the structured and consistent delivery, and practice of psychological skills (Boutcher & Rotella, 1987). The general purpose of PST is to aid athletes in the optimization of performance, increasing enjoyment, and fostering increased self-satisfaction in sport participation (Munroe-Chandler & Hall, 2021). The majority of PST can be

organized into two separate categories, cognitive and somatic methods (Behncke, 2004). PST programs that involve cognitive methods are rooted in the cognitive-behavioural approach, in which alterations to one's thoughts can influence emotions and behaviour (Boutcher & Rotella, 1987). Comparatively, the use of somatic methods is employed to improve performance by means of concentrating on a physical sensation to heighten awareness of the perception of movement or non-movement. For example, meditation can be used to enhance an athlete's awareness of the self (Behncke, 2004).

In any given program, there are a variety of techniques that a mental performance consultant (MPC) applies in consultation with an athlete. Hardy et al. (1996) suggested that basic psychological skills should be taught before advanced skills, although they did not mention in what sequence the basic or advanced skills should be taught. Basic psychological skills are those which can be presented to an athlete, and which serve various functions (Hardy et al., 1996). For example, they can be delivered on their own (e.g., imagery to envision a game scenario), or as subcomponents within an advanced psychological skill (e.g., imagery to reduce anxiety). In all, basic psychological skills have been identified by Hardy et al. (1996) as imagery, self-talk, goal-setting, and relaxation. Comparatively, advanced psychological skills are more complex in nature, which include specific strategies that athletes can employ to achieve performance goals, such as reaching a desired arousal level. Taken together, advanced psychological skills are comprised of motivation, self-confidence, arousal and activation, stress and anxiety, and concentration and attentional control.

In a given PST program, packaging a series of skills together to be delivered to the athlete can be of value, such as providing an additive effect on performance, as the skills can be complementary in nature (Thelwell, 2015). This is the case in a program-centered approach to

the delivery of psychological skills, whereby an athlete is given a preplanned set of mental skills (Vealey, 2007). It has been suggested that basic psychological skills should form the foundation of PST delivery, with advanced skills following (Hardy et al., 1996). Goal-setting, given its widespread use in many PST programs, has been described as a "springboard" for the delivery of a program (Ely et al., 2023 p. 44). Imagery, because of its versatility in being used for both cognitive and motivational purposes, should be delivered after goal-setting, as it can also serve as a building block to learn more complex mental skills (Ely et al., 2023; Hardy et al., 1996). Next, self-talk can be introduced, as it is similar in nature to imagery as it can serve instructional and motivational functions. Moreover, introducing self-talk after imagery may make it easier for an athlete to integrate (Ely et al., 2023). Lastly, it is beneficial for relaxation to be taught after self-talk, as it can be paired with either imagery or self-talk in a given relaxation technique. Following this, athletes can take what they have learned from the basic skills to grasp more complex psychological skills, such as managing emotions (Ely et al., 2023).

Goal-setting. Goal-setting is a theory of motivation that works to energize athletes to perform at an optimal level (Locke & Latham, 1990). Goals that athletes set can be represented through either internal, or external motivation. There are three basic types of goals that have been identified in the literature (Kingston & Hardy, 1997); 1) outcome goals, which focus primarily on the outcomes of athletic events and usually involve a form of social comparison, 2) performance goals, which reflect an idealized end-product that is independent of teammates, or other individuals with whom the athlete competes, and 3) process goals, which focus on behaviours that are displayed throughout a performance. There is a considerable amount of support for the use of process goals in competitive situations, as they can promote a task focus (Kingston & Wilson, 2008). Additionally, they can serve as a platform for the achievement of

outcome goals, given that the process goals are tailored to individual athlete needs. On the other hand, there is not as much empirical support for the use of performance goals. While there is some support for the use of performance goals as a means of producing a motivational effect for an athlete, to achieve certain outcome goals (Burton, 1989), they should not be used as a primary goal, since external factors, such as the quality of an opponent can undermine these goals (Kingston & Hardy, 1997). Lastly, outcome goals, which are inherently intertwined in social comparison, are greatly reliant on external factors that are outside an individual's control. Therefore, great precaution should be taken when providing athletes with certain outcome goals, as their degree of control over the outcome can vary (Kingston & Wilson, 2008).

Outside of the sporting domain, goal-setting has been shown to be an important part of psychiatric rehabilitation programs (Lecomte et al., 2005). It has been linked to both the promotion of hope, and personal meaning, both of which are important factors associated with psychological recovery (Andresen et al., 2003).

Imagery. Imagery involves using all sensory modalities to create or re-create an experience in the mind (Vealey & Greenleaf, 2001). This can be done in the absence of any external stimuli and can be created from information stored in one's mind. This is not to say that for an individual to utilize imagery, they necessarily need to utilize all sensory modalities at the same time. Rather, an image may involve one, or all the modalities. The analytic model of imagery proposes that imagery contains cognitive and motivational functions, which operate on either specific or general levels (Martin et al., 1999). The cognitive general (CG) function involves imaging aspects of strategies, routines, or game-plans, whereas the cognitive specific (CS) function reflects imaging specific skills, such as dribbling a basketball (Munroe-Chandler & Guerrero, 2017). Motivational general imagery involves an athlete imaging physiological

arousal levels and emotions, such as staying calm in certain situations. Comparatively, motivational specific imagery focuses on an athlete's specific goals, such as scoring a certain number of goals in hockey. Hausenblas et al. (1999) further divided the motivational general portion of imagery into two aspects. Motivational general-arousal (MG-A) includes imagery, which is associated with arousal and stress, and motivational general-mastery (MG-M), which reflects imagery associated with mental toughness, a sense of control, and self-confidence. With the different functions of imagery, there are a variety of impacts that it can have on athletes. First, it is largely used for motivational purposes, with most interventions having targeted MG-M imagery. The results from these interventions have largely been positive, with benefits including enhanced confidence, self-efficacy (Cumming & Ramsey, 2008), and mental toughness (Mattie & Munroe-Chandler, 2012). Imagery has also been used to reach desired somatic and emotional states which are associated with sport-related stress, arousal, and anxiety. Regarding the use of cognitive imagery, CS imagery has received the most focus in the literature. Some of the findings include improving task completion time (Munroe-Chandler et al., 2005), and improved self-efficacy for executing a specific skill (Davies et al., 2014). Research which has focused on CG imagery has been less clear-cut. For example, there have been mixed findings regarding athletes' strategy execution (Guillot et al., 2009; Munroe-Chandler et al., 2005). Despite this, there is support for the use of CG imagery in enhancing self-confidence levels, self-efficacy, and imagery ability (Westlund et al., 2012).

Importantly, low self-confidence and self-efficacy, both of which are impacted by imagery use, can have negative implications on mental health. For example, individuals who experience high levels of self-stigma (those who experience mental illness and internalize stigma) experience lessened self-efficacy and self-esteem (Corrigan & Watson, 2002). Athletes

who don't demonstrate healthy strategies to manage emotions can engage in alternative strategies, such as compartmentalization, whereby athletes subconsciously place simultaneous experience in separate psychological places, which can work to effectively conceal mental health symptoms (Aron et al., 2019).

Self-talk. Self-talk is a dynamic and multidimensional process that includes vocalizations that individuals say to themselves out loud or inside their heads, is self-directed, and serves at least two functions for the athlete, being either instructional or motivational (Hardy, 2006). Instructional self-talk is used for performance related purposes that include skill development and execution, strategy development, and overall performance improvement (Hardy et al., 2001). Comparatively, motivational self-talk serves three main purposes: for mastery (building self-confidence, coping with difficult circumstances), for arousal (relaxation or psyching oneself up), and for drive (increasing effort). There is overwhelming support for the relationship between positive thinking and enhanced performance, which undoubtedly requires positive self-talk (Hase et al., 2019).

Although largely applicable to the sport domain, self-talk has begun to be applied to the mental health realm, especially since the beginning of the COVID-19 pandemic (Sadri Damirchi et al., 2020). Notably, in a study with Iranian adults (Sadri Damirchi et al., 2020) found a significant positive relationship between self-talk and a problem-centered coping style regarding death anxiety, obsessive-compulsive disorder, and coping strategies in the face of COVID-19.

Routines. Pre-performance routines are believed to be an important behavioural technique to aid performers in achieving optimal performance. The most used definition was offered by Moran (1996), which describes pre-performance routines as a systematic sequencing of task-relevant thoughts and actions prior to a performance in which an athlete will engage. Pre-

performance routines have been examined most extensively as a link to performance in sport (Cotterill, 2010). Various studies have been published providing support for the efficacy of pre-performance routines in improving performance, such as Czech et al. (2004) who examined pre-performance routines in basketball free throw shooting. The widespread use of these routines in sport comes as a result of the belief that they aid in performance concentration. Of the hypotheses put forward to explain the roles that pre-performance routines play in aiding performance, the most predominant suggests that routines prescribe athletes an attentional focus, reduce distractions, help trigger engrained movement patterns, divert attention from task-irrelevant thoughts towards task-relevant ones, and improve concentration (Cotterill, 2010).

The benefits that have been described, can be extended beyond sport. Increasing attentional focus, which routines have been found to do, can work to ground individuals to their surroundings so cognitive-based strategies learned in treatment can be applied. This was demonstrated by Williams and Grisham (2012) who found that individuals who engaged in compulsive shopping demonstrated a less dispositional mindful attentional focus, which in turn was related to specific emotional regulation deficits.

Managing Emotions. Emotional regulation often focuses on attempting to re-frame an athlete's attitudes towards specific emotional experiences (Hanin, 2000). Specifically, an athlete can learn how to influence their emotions. This includes which emotions are experienced, when and how they are manifested, and how they are expressed (Gross, 2013). This can be a conscious effort on the part of the athlete but can also include unconscious responses to an emotion. Gross' model includes five types of emotion regulation strategies. First, is situation selection, where an athlete takes actions to increase the likelihood that they will be placed in a situation which promotes favourable emotions. Second, is situation modification, where an athlete tries to

influence the situation directly. Third, is attentional deployment, which involves regulating one's emotions by directing attention towards, or away from a situation. Fourth, is cognitive change, where an athlete changes how they think about an event in an attempt to change its emotional significance. Last, is response modulation. This involves physiological, experiential, or behavioural responses that an athlete deploys to regulate emotions. Emotional regulation serves a role of adding a new quality to an emotional state, such as anxiety, in order to help the athlete to view the emotional state as a factor that facilitates improved performance.

While important in sport, emotion regulation has been described as a fundamental prerequisite of general mental health (Gross & Muñoz, 1995). It allows individuals to work productively, maintain healthy relationships, and develop an inner sense of meaning. The mental health benefits of emotion regulation extend to the sport domain as well, as there is ample evidence to support that emotion regulation and coping are important factors in promoting athletes' wellbeing and performance (Madigan et al., 2020). Tamminen et al. (2016) found that athletes' self-worsening emotion regulation strategies were negatively associated with enjoyment of sport. Comparatively, athletes who demonstrated positive emotion regulation strategies were more likely to experience enjoyment and commitment to their sport.

Relaxation. Relaxation procedures are strategies that are applied to help relieve the burden of anxiety and tension that an athlete may face (Cox, 2019). The various techniques all attempt to induce the relaxation response, which consists of physiological changes that counteract the fight or flight response of the sympathetic nervous system. Relaxation training is an important element in the treatment of anxiety, such as with generalized anxiety disorder (Dugas et al., 2010). Also, there is research to support the use of relaxation training in the treatment of depressive symptoms (Jorm et al., 2008). One of these techniques, is progressive

muscle relaxation (PMR) (McGuigan & Lehrer, 2021). PMR involves systematically tensing and releasing various muscle groups, which can lead to a feeling of deep relaxation (McCallie et al., 2006). It is a coping strategy that is applied during CBT and has been shown to reduce various forms of anxiety, such as general anxiety reactions (Liang et al., 2020). Additionally, it has been shown to be able to decrease anxiety and pressure, while aiding performance among professional athletes (Keilani et al., 2016).

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APPENDICES

APPENDIX A

Email Communication with Athletes (Via AIMS)

Dear Athlete,

My name is Aidan Kovacs. I am a master's student at the University of Windsor in the Department of Kinesiology, and along with my advisor (Dr. Krista Munroe-Chandler) and fellow graduate student, Frank Ely, we are conducting a study investigating the impact of an online psychological skills training program on varsity athletes' mental health. This study has received University of Windsor ethics clearance. If you agree to participate, you will be asked to complete a series of questionnaires at the onset of the study (20-25 mins). You will then receive a link to access the 6 online mental training modules (goal-setting, imagery, self-talk, routines, managing emotions, relaxation) to be completed at your leisure (10 mins/module). Ideally, the modules should be completed weekly, however, you are free to do them at your own pace. Following the completion of all six modules, you will then be required to complete the same series of questionnaires that you completed at the onset of the study (20-25 mins).

If you agree to participate, you will receive psychological skills training that can improve sport-related performance, as well as enhance day-to-day well-being. While these services (online PST modules) typically come with a large monetary cost of $100-150 USD per hour. They are being offered to you free of charge.

All information obtained from the study will be confidential.

Please reply to this email (Kovacs5@uwindsor.ca) if you are interested in participating, have any questions, or require clarification. You may also contact Dr. Krista Munroe-Chandler (chandler@uwindsor.ca) to participate in this research. I have also attached a document (i.e., Letter of Information) which contains more information about the nature of the study as well as how to become involved in this project. All information that will be sent to University of Windsor athletes will be done so through the platform "AIMS" with permission from by Stephanie White, Athletic Director at the University of Windsor.

Thank you in advance for your participation. It will greatly help my colleagues and I advance knowledge in the field of psychological skills training and mental health. Additionally, you can be provided with all of the benefits that psychological skills training has to offer, while only taking 10 minutes per week of your time.

Aidan Kovacs
Kovacs5@uwindsor.ca
519-253-3000 ext. 4997

Module Access Email (via AIMS)

Dear athlete,

Thank you for agreeing to participate in our study. Below are links to all six modules. We recommend that you complete the modules in order and that you complete one a week for six weeks, however, feel free to complete at your own pace.

Module Links:
Module 1 – Goal Setting
Module 2 – Imagery
Module 3 – Self-Talk
Module 4 – Routines
Module 5 – Managing Emotions
Module 6 – Relaxation

If you have any questions, please let us know.

Aidan Kovacs
Kovacs5@uwindsor.ca
519-253-3000 ext. 4997

Module Reminder Email (via AIMS)

Dear athlete,

This is a reminder to complete your online modules. It is recommended that the modules are completed in order, and that this is done so at a pace of one module per week. However, we realize that may not always be possible so feel free to complete the modules at your own pace.

Module Links:
Module 1 – Goal Setting
Module 2 – Imagery
Module 3 – Self-Talk
Module 4 – Routines
Module 5 – Managing Emotions
Module 6 – Relaxation

If you have any questions, please let us know.

Aidan Kovacs
Kovacs5@uwindsor.ca
519-253-3000 ext. 4997

Post-Intervention Email (via AIMS)

Dear athlete,

Thank you for your completion of the 6 psychological skills modules. Your responses have been recorded. As a follow-up, please see the attached link to complete the final questionnaires. We thank you for your time and hope you've enjoyed the psychological skills training modules.

https://uwindsor.ca1.qualtrics.com/jfe/form/SV_6Dzr5VXbE69U4Qe

If you have any questions, please let us know. Below is a link to mental health and well-being resources offered through the university of Windsor.

https://www.uwindsor.ca/wellness/340/resources

Aidan Kovacs
Kovacs5@uwindsor.ca
519-253-3000 ext. 4997

APPENDIX B

LETTER OF INFORMATION FOR CONSENT TO PARTICIPATE IN RESEARCH

Title of Study: The impact of an online psychological skills training program on the mental health of varsity athletes

You are asked to participate in a research study conducted by Mr. Aidan Kovacs, Dr. Krista Munroe-Chandler, and Mr. Frank Ely, from the Department of Kinesiology at the University of Windsor.

If you have any questions or concerns about the research, please feel free to contact Mr. Kovacs, Dr. Munroe-Chandler, or Mr. Ely at kovacs5@uwindsor.ca, chandler@uwindsor.ca, elyf@uwindsor.ca

PURPOSE OF THE STUDY
The purpose of the study is to conduct a research study exploring the Impact of an online psychological skills training program on the mental health of varsity athletes.

PROCEDURES
If you volunteer in this study, you will be asked to:
Complete five brief online questionnaires at the onset of the study (25 minutes). Following this, you will be provided with six online psychological skills training (PST) modules Module 1 – Goal Setting, Module 2 – Imagery, Module 3 – Self-talk, Module 4 – Routines, Module 5 – Managing Emotions, and Module 6 – Relaxation/psyching up. All six modules will be emailed to you through AIMS. You will be asked to complete the six modules over the course of six weeks; leaving it up to you if you complete all at once or one a week. It will take approximately 10 minutes to complete each module. Following the completion of the six modules, you will then be asked to complete the five questionnaires that were provided at the onset of the study, for a second time (25 minutes). Then, you will be provided with a follow-up survey six weeks after the completion of the five questionnaires.

POTENTIAL RISKS AND DISCOMFORTS
You may experience discomfort when sharing personal information about challenges you have experienced regarding your mental health. To minimize any discomfort, you may skip a question or withdraw at any point without consequence. Additionally, the online nature of the study allows for participation to be done at the location of your choosing.

POTENTIAL BENEFITS TO PARTICIPATION AND/OR SOCIETY
The information gained in this study will help advance knowledge in the field of the use of psychological skills and mental health in varsity athletes.

COMPENSATION FOR PARTICIPATION
Participants will be provided with free Psychological Skills Training that often has a monetary cost ($150-160 USD per hour) associated with it.

CONFIDENTIALITY
All information collected for this project will be kept strictly confidential and there will be no identifiable information from the survey responses. The results from this study may be published and presented at scientific conferences, however your identity will not be revealed in the results. All data will be labeled with participants numbers in place of any identifiable information. All data are stored on a password-protected computer in the lead researcher's office and are for research use only. By signing this consent form, you give us permission to use your data in the preparation of published articles and research presentations.

PARTICIPATION AND WITHDRAWAL

Participation in this study is voluntary. You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time during the study. You may also refuse to answer any questions and remain in the study. Additionally, you may choose to withdraw your responses any time prior to one week post completion of the study. To withdraw from the study, you must notify the researchers via email of your inability to continue to participate. The investigators may withdraw you from the study if circumstances arise which warrant doing so. If you choose to not participate in this study or withdraw during the study, this has no bearing on a relationship you may have with any of the investigators (if relevant).

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE PARTICIPANTS
A Summary of the results will be posted at the University of Windsor's Research Ethics Board website (https://scholar.uwindsor.ca/research-result-summaries/). If you have any additional concerns or questions, you can call the investigators at the numbers above.

Date: 2024/05/15

SUBSEQUENT USE OF DATA
These data may be used in subsequent studies, in publications and in presentations.

RIGHTS OF RESEARCH PARTICIPANTS
If you have questions regarding your rights as a research participant, contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario N9B 3P4; Telephone: 519-253-3000, ext. 3948; email: ethics@uwindsor.ca

SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

Signature of Investigator Date

APPENDIX C

CONSENT TO PARTICIPATE IN RESEARCH

Title of Study: The impact of an online psychological skills training program on the mental health of varsity athletes

You are asked to participate in a research study conducted by Mr. Kovacs, Dr. Munroe-Chandler, and Mr. Ely from the Department of Kinesiology at the University of Windsor.

If you have any questions or concerns about the research, please feel to contact Mr. Kovacs, Dr. Munroe-Chandler, or Mr. Ely at kovacs5@uwindsor.ca, chandler@uwindsor.ca, or elyf@uwindsor.ca.

PURPOSE OF THE STUDY
The purpose of the study is to conduct a research study exploring the Impact of an online psychological skills training program on the mental health of varsity athletes.

PROCEDURES
If you volunteer in this study, you will be asked to:
If you volunteer in this study, you will be asked to:
Complete five brief online questionnaires at the onset of the study (25 minutes). Following this, you will be provided with six online psychological skills training (PST) modules: Module 1 – Goal Setting, Module 2 – Imagery, Module 3 – Self-talk, Module 4 – Routines, Module 5 – Managing Emotions, and Module 6 – Relaxation. All six modules will be emailed to you through AIMS. You will be asked to complete the six modules over the course of six weeks; leaving it up to you if you complete all at once or one a week. It will take approximately 10 minutes to complete each module. Following the completion of the six modules, you will then be asked to complete the five questionnaires that were provided at the onset of the study, for a second time (25 minutes). Then, you will be provided with a follow-up survey six weeks after the completion of the five questionnaires.

POTENTIAL RISKS AND DISCOMFORTS
You may experience discomfort when sharing personal information about challenges you have experienced regarding your mental health. To minimize any discomfort, you may skip a question or withdraw at any point without consequence.

POTENTIAL BENEFITS TO PARTICIPATION AND/OR SOCIETY
The information gained in this study will help advance knowledge in the field of the use of psychological skills and mental health in varsity athletes.

COMPENSATION FOR PARTICIPATION

Participants will be provided with free Psychological Skills Training that often has a monetary cost associated with it.

CONFIDENTIALITY

All information collected for this project will be kept strictly confidential and there will be no identifiable information from the survey responses. The results from this study may be published and presented at scientific conferences, however your identity will not be revealed in the results. All data will be labeled with participants numbers in place of any identifiable information. All data are stored on a password-protected computer in the lead researcher's office and are for research use only. By signing this consent form, you give us permission to use your data in the preparation of published articles and research presentations.

PARTICIPATION AND WITHDRAWAL

Participation in this study is voluntary. You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time throughout. You may also refuse to answer any questions and still remain in the study. Additionally, you may choose to withdraw your responses any time prior to two weeks post completion of the study. To withdraw during the study, you must notify the researcher prior to completion of the study. The investigators may withdraw you from the study if circumstances arise which warrant doing so. If you choose to not participate in this study or withdraw during the study, this has no bearing on a relationship you may have with any of the investigators (if relevant).

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE PARTICIPANTS

A Summary of the results will be posted at the University of Windsor's Research Ethics Board website (https://scholar.uwindsor.ca/research-result-summaries/). If you have any additional concerns or questions, you can call the investigators at the numbers above.

Date: 2024/05/15

SUBSEQUENT USE OF DATA

These data may be used in subsequent studies, in publications and in presentations.

RIGHTS OF RESEARCH PARTICIPANTS

If you have questions regarding your rights as a research participant, contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario N9B 3P4; Telephone: 519-253-3000, ext. 3948; email: ethics@uwindsor.ca

SIGNATURE OF RESEARCH PARTICIPANT/LEGAL REPRESENTATIVE

I understand the information provided for the study **The impact of an online psychological skills training program on the mental health of varsity athletes** as described herein. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

Signature of Investigator Date

APPENDIX D

Survey Packages

1. Pre-Intervention Survey Package

    - Consent Form (see Appendix C)
    - Demographics (see Appendix G)
    - Mental Health (see Appendix H)
    - Brief Resilience Scale (see Appendix I)
    - Satisfaction with Life (see Appendix J)
    - Link to Mental Health Resources through the University of Windsor

2. Post-Intervention & Follow-up Survey Packages

    - Demographics (see Appendix G)
    - Mental Health (see Appendix H)
    - Psychological Skills (see Appendix I)
    - Brief Resilience Scale (see Appendix I)
    - Satisfaction with Life (see Appendix J)
    - Link to Mental Health Resources through the University of Windsor

APPENDIX E

Survey Embedded in each Module

Items on Qualtrics Survey

1. Last four digits of phone number
    a. Fill-in

2. Email Address
    a. Fill-in

3. How Satisfied were you with the information delivered on [insert Module Topic, e.g., Goal Setting]?
    a. Very satisfied
    b. Satisfied
    c. Unsure
    d. Dissatisfied
    e. Very dissatisfied

4. Do you have any questions or feedback?
    a. Fill-in

APPENDIX F

Demographics

Please indicate the following:
Your age in years.
Your race that best describes you:

- Black
- East Asian
- Latino
- Middle Eastern
- Indigenous
- South Asian
- Southeast Asian
- White/Caucasian
- Other

Your gender:

- Woman/Girl
- Man/Boy
- Indigenous or other cultural identity (e.g., two-spirit)
- Non-binary, genderqueer, agender, or similar identity

Faculty of study:

- Faculty of Arts, Humanities, and Social Sciences
- Faculty of Education
- Faculty of Engineering
- Faculty of Graduate Studies
- Faculty of Human Kinetics
- Faculty of Law
- Faculty of Nursing
- Odette School of Business
- Faculty of Science
- Schulich School of Medicine and Dentistry

Your year of study (1-5):
Your current varsity team (e.g., women's softball):
How many years you have been on the varsity team:
Have you ever worked with a sport psychology consultant?

- Yes
- No
- Don't know

APPENDIX G

Depression Anxiety Stress Scale

Each statement is accompanied by a four-point response option which indicates how much each statement applied to the respondent over the course of the previous week:
0: Not at all
1: Sometimes
2: Often
3: Almost always

1. I found myself getting upset by quite trivial things
2. I was aware of dryness in my mouth
3. I couldn't seem to experience any positive feeling at all
4. I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)
5. I just couldn't seem to get going
6. I tended to over-react to situations
7. I had a feeling of shakiness (e.g., legs going to give way)
8. I found it difficult to relax
9. I found myself in situations that made me so anxious I was most relieved when they ended
10. I felt that I had nothing to look forward to
11. I felt myself getting upset rather easily
12. I felt that I was using a lot of nervous energy
13. I felt sad and depressed
14. I found myself getting impatient when I was delayed in any way (e.g., lifts, traffic lights, being kept waiting)
15. I had a feeling of faintness
16. I felt that I had lost interest in just about everything
17. I felt I wasn't worth much as a person
18. I felt that I was rather touchy
19. I perspired noticeably (e.g., hands sweaty) in the absence of high temperatures or physical exertion
20. I felt scared without any good reason
21. I felt that life wasn't worthwhile
22. I found it hard to wind down
23. I had difficulty in swallowing
24. I couldn't seem to get any enjoyment out of the things I did
25. I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)
26. I felt down-hearted and blue
27. I found that I was very irritable
28. I felt that I was close to panic
29. I found it hard to calm down after something upset me
30. I feared that I would be "thrown" by some trivial but unfamiliar task
31. I was unable to become enthusiastic about anything

32. I found it difficult to tolerate interruptions to what I was doing
33. I was in a state of nervous tension
34. I felt I was pretty worthless
35. I was intolerant of anything that kept me from getting on with what I was doing
36. I felt terrified
37. I could see nothing in the future to be hopeful about
38. I felt that life was meaningless
39. I found myself getting agitated
40. I was worried about situations in which I might panic and make a fool of myself
41. I experienced trembling (e.g., in the hands)
42. I found it difficult to work up the initiative to do things

APPENDIX H

Brief Resilience Scale

Each statement is accompanied by a four-point response option which indicates how much each statement applied to the respondent over the course of the previous week:
0: Strongly disagree
1: Disagree
2: Neutral
3: Agree
4: Strongly agree

1. I tend to bounce back quickly after hard times
2. I have a hard time making it through stressful events
3. It does not take me long to recover from a stressful event
4. It is hard for me to snap back when something bad happens
5. I usually come through difficult times with little trouble
6. I tend to take a long time to get over setbacks in my life

APPENDIX I

Satisfaction with Life Scale

1 Strongly disagree	2 Disagree	3 Slightly disagree	4 Neither agree nor disagree	5 Slightly agree	6 Agree	7 Strongly agree

Instructions: ***Below are statements with which you may agree or disagree. Indicate your agreement with each item. Please be open and honest in your responding.***

Q1. In most ways, my life is close to ideal_____

Q2. The conditions of my life are excellent_____

Q3. I am satisfied with my life_____

Q4. So far, I have gotten the important things I want in life_____

Q5. If I could live my life over, I would change almost nothing_____

VITA AUCTORIS

NAME:	Aidan Kovacs
PLACE OF BIRTH:	London, ON
YEAR OF BIRTH:	1999
EDUCATION:	Catholic Central High School, London, ON, 2017
	The University of Western Ontario, B.A., London, ON, 2022
	University of Windsor, M.HK., Windsor, ON, 2024