

**The Implementation and Impact of a Self-Regulation Intervention
on the Levels and Experiences of Stress, Burnout, Well-Being, and Self-Regulation
Capacity of University Student-Athletes with Moderate to High Levels of Burnout**

Nicole Dubuc-Charbonneau

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School of Human Kinetics
Faculty of Health Sciences
University of Ottawa

Abstract

Gaps. University student-athletes face several unique demands that can contribute to greater levels of stress (Gould & Whitley, 2009; Kimball & Freysinger, 2003). If unresolved, stress can compromise well-being and lead to burnout (DeFreese & Smith, 2014). Many studies have shed light on the burnout process of athletes (Goodger, Gorely, Lavalley, & Harwood, 2007; Gustafsson, Kenttä, & Hassmén, 2011). Yet, despite the negative outcomes reported, little has been done to remediate the incidence of burnout in sport. As such, researchers have called for intervention studies to find ways to alleviate and prevent burnout as this type of research is practically non-existent (Eklund & DeFreese, 2015; Goodger, Gorely et al., 2007; Gustafsson et al., 2011; Lonsdale, Hodge, & Rose, 2009)

Aim. The overall aim of this research was to investigate the implementation and impact of an individual, feel-based, person-centered self-regulation intervention on the levels and experiences of stress, burnout, well-being, and self-regulation capacity of university student-athletes with moderate to high levels of burnout. Four studies guided by specific objectives were carried out over two phases, that is, the screening phase and the intervention phase.

Screening phase. The objective of the study conducted in the screening phase was to examine the levels of burnout among student-athletes at two Canadian universities and investigate whether there were significant differences related to gender, sport, year of university sport participation, academic year, and academic program (**Article 1**). Results of this study served to identify student-athletes for the intervention phase.

Intervention phase. Three studies were conducted in the intervention phase. The objective of the first study was to implement and assess the impact of a self-regulation intervention on the stress, burnout, well-being and self-regulation capacity of university student-

athletes experiencing moderate to high levels of burnout (**Article 2**). The objective of the second study was to investigate the intervention process and experiences of four student-athletes by chronologically presenting their story in order to address how they developed their self-regulation capacity over the course of the season, and the strategies they used to influence their experiences of stress, burnout, and well-being (**Article 3**). Finally, the objective of the third study in this phase was to investigate the integration and adaptation of the Cognitive-Affective Stress-Based Burnout Model (CASBBM) to facilitate positive changes in student-athletes participating in an individual self-regulation intervention to alleviate burnout symptoms (**Article 4**).

Methods. Screening phase. To address the objective of the study conducted in the screening phase, 147 student-athletes from different sports at two Canadian universities completed the Athlete Burnout Questionnaire (ABQ, Raedeke & Smith, 2001) and a demographic questionnaire one month prior to the start of their athletic season. Statistical tests were computed based on the complete score set of 145 participants to assess their burnout levels and correlations between the three burnout subscales (i.e., physical and emotional exhaustion, reduced accomplishment, sport devaluation). In addition, a series of one-way between subject ANOVAS, independent *t*-tests and post-hoc analyses were performed to determine if there were any significant differences in burnout levels across different demographic variables (i.e., gender, sport, year of university sport participation, academic year, and academic program; **Article 1**).

Intervention phase. Next, to address the objectives of the three studies carried out in the intervention phase, eight university student-athletes from the screening phase having scored 3.0 or higher on the physical and emotional exhaustion and reduced accomplishment subscales of the ABQ (Cresswell & Eklund, 2006) took part in an individual, person-centered, feel-based self-regulation intervention guided by the CASBBM (Smith, 1986) and the Resonance Performance

Model (Callary & Durand-Bush, 2008). The student-athletes met with the trained researcher every two weeks throughout their athletic season to develop their capacity to manage their thoughts, feelings, and behaviours on a daily basis and to cope with adversity, including stressful situations that contributed to their stress and burnout symptoms. In addition to participating in these multiple intervention sessions, they partook in a pre- and post-intervention interview. All sessions and interviews were audio-recorded, transcribed verbatim, and subjected to a deductive and inductive analysis (Hsieh & Shannon, 2005), following steps to strengthen trustworthiness.

Self-report measures of stress, burnout, well-being, and self-regulation capacity were also completed by the eight student-athletes at four time points to fulfill the objective of the first study in this phase. Descriptive statistics and repeated measures ANOVAs were performed to assess levels and identify any significant changes across the four time points. Results were triangulated with that from the qualitative data analysis (**Article 2**). With regards to the second study, the researcher used the results of the deductive and inductive qualitative data analysis to select four cases based on their distinct profiles and conveyed their intervention experiences by constructing chronological, first-person narratives (**Article 3**). For the third study, a broader level of qualitative data analysis was performed to compare and contrast the data with the components of the CASBBM to examine its applicability as an intervention tool (**Article 4**).

Results. As shown in **Article 1**, few student-athletes (1.4%) had elevated burnout scores on all three burnout subscales. However, several of them (17%) scored high on two of the three subscales of the ABQ, revealing signs of burnout. No significant differences emerged with regards to student-athletes' year of university sport participation, academic year, and academic program. However, women had higher levels of emotional and physical exhaustion than men. Furthermore, exhaustion scores were significantly higher for swimmers and basketball players

than for hockey players and fencers. Finally, fencers had significantly higher levels of sport devaluation than hockey and volleyball players.

Article 2 indicates that the intervention had a positive impact on the student-athletes' stress, burnout, well-being, and self-regulation capacity. At the onset of the intervention, the participants had moderate to high levels of stress and burnout as well as low levels of well-being and self-regulation capacity. As the intervention progressed, the student-athletes reported increased self-regulation capacity and well-being, and reduced stress and burnout. The qualitative data corroborated these changes.

Through detailed narratives, *Article 3* demonstrates how the student-athletes learned to develop their self-regulation capacity by implementing various processes such as goal-setting, planning, time management, cognitive restructuring, self-control, visualization, and self-reflection. The participants shared concrete examples illustrating how they learned to become more aware and autonomous, and proactively mobilize resources in order to manage the many academic and sport demands they faced throughout the season. Concurrent with their increased capacity to self-regulate, the athletes experienced positive outcomes such as lower perceived stress and burnout, higher well-being, and improved performance.

Lastly, *Article 4* shows that the extensive data emerging from the multiple intervention sessions and pre- and post-intervention interviews supported, for the most part, the components of the CASBBM (Smith, 1986). However, the model was not sufficient or comprehensive enough to account for the student-athletes' changes in their burnout process as a result of the intervention. As such, the DCASBBM, an adapted and dynamic version of the CASBBM, was created, reflecting both positive and negative aspects of personal characteristics, situations, cognitive appraisals, multidimensional responses, coping, self-regulation, and outcomes that

evolved as a result of participating in a self-regulation intervention. The DCASBBM can serve as an intervention tool to help prevent and remediate symptoms of stress and burnout.

Keywords: self-regulation, stress, burnout, well-being, student-athletes, university sport, intervention, mixed methods

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Part I

Introduction

Research on athlete burnout has flourished over the years and findings have contributed to a greater understanding of this phenomenon (Goodger, Gorely et al., 2007; Gustafsson et al., 2011; Raedeke, 1997; Smith, 1986). However, one gap in this area of research pertains to interventions. Despite several calls to investigate the development and implementation of interventions to prevent and alleviate athlete burnout (Eklund & Defreese, 2015; Goodger, Gorely et al., 2007; Goodger, Lavalley, Gorely, & Harwood, 2006; Lonsdale & Hodge, 2011; Lu et al., 2016), this topic has largely been overlooked. The following review of literature will provide a greater understanding of the burnout process from a stress-based perspective. Furthermore, related concepts such as stress and well-being will be presented in order to provide a more holistic understanding of the burnout phenomenon relative to university student-athletes. Finally, research pertaining to self-regulation and interventions in sport will be addressed to provide the necessary foundation to justify carrying out the current research, which aimed to fill an important gap in the literature. Specifically, the overall purpose was to investigate the implementation and impact of a self-regulation intervention on the levels and experiences of stress, burnout, well-being, and self-regulation capacity of university student-athletes who had moderate to high levels of burnout.

Literature Review

Understanding Stress and Burnout

Conceptualization of stress. Stress emerged in the literature as early as 1932 and was described as the body's fight or flight response to a threat (Cannon, 1932). Two decades later, Hans Selye expanded preliminary findings and provided evidence demonstrating that despite

varying origins of stress, similar physiological reactions arise and require a certain level of adaptation (Seyle, 1956). By 1966, Lazarus explained that stress arises when individuals perceive that they can no longer cope with the demands being placed upon them or with threats to their well-being. Since then, Lazarus and Folkman provided an all-encompassing conceptualization of stress by taking into account a broad spectrum of factors including stimuli, responses, cognitive appraisals of threat, emotions, coping styles, psychological defenses, and the social milieu (Folkman & Lazarus, 1988; Lazarus, 1990; Lazarus & Folkman, 1984; 1987). In their transactional model, Lazarus and Folkman (1984) contended that the relationship between the person and his environment (i.e., the transaction) is appraised and evaluated based on the person's perceptions of resources versus demands. A perceived imbalance between resources and demands was believed to result in stress, requiring coping processes. As such, Lazarus and Folkman (1984) explained that while a particular situation can be perceived as threatening and can cause stress and negative outcomes for one person, the same situation may be perceived as challenging by a different person with varying motives, personality, or experiences. This conceptualization of stress, in which a person's perception of an imbalance is a core component, is relevant to conceptualizations of burnout in sport.

Conceptualizations of athlete burnout. Burnout first emerged as a topic of interest in the occupational literature and mainly pertained to human service providers (Freudenberger, 1974). Building on studies in the context of helping professions, Maslach and Jackson (1981) proposed that burnout is characterized by three distinct dimensions: (a) emotional exhaustion, (b) reduced personal accomplishment, and (c) depersonalization. This, as well as studies on stress, informed the literature on burnout in sport. Smith (1986) suggested that the chronic stress experienced by some athletes can result in burnout. According to this scholar, stress is the result

of a perceived imbalance between the demands that athletes face and the resources and abilities they possess to meet these demands. Given the unique features of athletic performance and the sport environment, Raedeke (1997) revised Maslach and Jackson's (1981) original work and postulated that athlete burnout was characterized by physical and emotional exhaustion, reduced personal accomplishment, and sport devaluation. While Maslach and Jackson's (1981) original reduced personal accomplishment dimension directly applied to a sport context (e.g., decrease in perceived efficacy or capacity when doing one's work), the dimension of emotional exhaustion was extended to include physical exhaustion since athletes suffering from burnout are typically both emotionally and physically strained due to their high training loads. Depersonalization, which Maslach and Jackson (1981) defined as a cynical, negative, or detached response to care recipients or patients in the workplace, was replaced by sport devaluation. According to Raedeke (1997), this dimension reflects athletes' development of negative thoughts or attitude toward their sport and their involvement in it. As such, this dimension implies that athletes who burn out likely lose interest in their overall sport and not just specific people in their environment.

Frameworks of athlete burnout. Since the first studies emerged in the late 1980's, athlete burnout has been examined through multiple lenses, each contributing to a more holistic and comprehensive account of this condition. Smith (1986) was the first to examine the development of athlete burnout and he did so by extending his previous work in the field of stress. This work propelled various other researchers to propose numerous perspectives. For example, Silva's (1990) training stress model highlighted the progressive nature of burnout, describing this condition as the outcome of a training stress syndrome characterized by various stages such as overtraining and staleness. Silva's model has received some empirical support (Kenttä & Hassmén, 1998), yet it has also been criticized for the overlap between stages

(Gustafsson et al., 2011) and an overemphasis on physical training (Gould, Tuffey, Udry, & Loehr, 1996).

Schmidt and Stein (1991) and Raedeke (1997) proposed a sport commitment perspective showing that despite various negative sport experiences (e.g., low perceived control and high social constraints), athletes perceiving a high level of investment in their sport and few alternatives outside their sport environment remain in their sport and experience entrapment. Consequently, for these athletes, sport becomes an important source of stress and their risk of burnout increases. While this perspective offered great insight into the identification of athlete profiles who may be more likely to burn out, the reasons for which athletes possess these varying commitment profiles were not clearly addressed.

Coakley (1992) adopted a different perspective focused on the sport environment to demonstrate that burnout is a social phenomenon in which athletes become disempowered and lack perceived control over all important aspects of their life. He suggested that the root of burnout is “grounded in social organization rather than in the character of individuals” (p.274). This perspective highlights the important role of social influences, however, it fails to acknowledge the role of individual perceptions and personality factors in the development of burnout. Empirical data has since shown that individual factors help explain why some athletes in similar sporting environments are more likely to burnout than others (Gould et al., 1996; Lemyre, Treasure, & Roberts, 2006)

Drawing from some of the key concepts presented within Raedeke’s (1997) sport commitment perspective and Coakley’s (1992) sociological perspective, some scholars used self-determination theory to shed additional light on athlete burnout (Lemyre et al., 2006; Lonsdale & Hodge, 2011; Perreault, Gaudreau, Lapointe, & Lacroix, 2007). They found that motivational

drives and psychological needs can influence levels of athlete burnout. Specifically, self-determined forms of motivation (i.e., intrinsic motivation) were linked to lower burnout scores whereas amotivation and extrinsic motivation were strongly correlated with burnout (Isoard-Gauthier, Guillet-Descas, & Lemyre, 2012; Lemyre et al., 2006).

Drawing from the literature, Gustafsson and colleagues (2011) presented an integrated model of athlete burnout in order to consolidate the key principles from various existing athlete burnout models. This model takes into account the process and potential outcomes of athlete burnout. Specifically, it highlights the relationships between the following components: (a) major antecedents, (b) early signs, (c) entrapment (i.e., what keeps athletes in sport despite negative outcomes), (d) personality, coping, and the environment, (e) key burnout dimensions, and (f) consequences. While it may be difficult to validate this model given its numerous components, it provides a deeper understanding of the dynamic nature of burnout.

Overall, the aforementioned models reveal the complexity of the burnout process and the many factors that must be taken into account when examining it. Given that stress within the burnout process has received wide empirical support (Cresswell, 2009; Gould et al., 1996; Gustafsson et al., 2011), it will be described in greater detail as it was a key variable in the development and implementation of the intervention in the current study.

CASBBM. Smith's (1986) CASBBM (see Figure 1 in Appendix A) draws from Lazarus and Folkman's research on stress and is the most cited (Gustafsson, Hancock, & Côté, 2014) and supported model in the sport burnout literature due to its theoretical strength (e.g., Cresswell & Eklund, 2006; Gould et al., 1996; Leff & Hoyle, 1995; Raedeke, 1997; Raedeke & Smith, 2001; 2004). In fact, several variables from the previously discussed burnout frameworks are embedded in the CASBBM. In the CASBBM, burnout "represents the manifestations or

consequences of the situational, cognitive, physiological, and behavioral components of stress” (Smith, 1986, p. 42). As such, the CASBBM includes the following four components: Situation, Cognitive Appraisal, Physiological Responses, and Coping and Task Behaviors.

A strength of the model is that it acknowledges the interaction between situational and personal factors, whereby personality and motivation influence all components of the model and are linked to burnout (Cresswell & Eklund, 2005; Goodger, Gorely et al., 2007; Gould et al., 1996; Smith, 1986). The Situation, the first component in the CASBBM, is characterized by the interaction between athletes’ self or externally imposed demands (e.g., personal goals, motives, conflicts, opponents, coaches) and the resources they possess (e.g., skills, social support, time). High or conflicting demands paralleled with insufficient resources, low social support, low autonomy, and a lack of rewards are proposed to cause stress, which, if chronic, can increase the risk of burnout. Smith (1986) added that when athletes do not feel challenged to use their resources due to insufficient demands, they may feel bored and unmotivated, which can also contribute to stress. This component of the model has been supported in various studies (e.g., Coakley, 1992; DeFreese & Smith, 2013; 2014; Hodge, Lonsdale, & Ng, 2008; Isoard-Gautheir et al., 2012), and underscores the role of autonomy and social support in the burnout process. The second component of the CASBBM, Cognitive Appraisal, demonstrates the importance of individual perceptions. Within situations, athletes cognitively appraise demands, available resources, potential consequences of unmet demands, and the personal meaning of those consequences. Stress results from athletes’ perceived imbalance between situational demands and resources (Smith, 1986). According to Smith, athletes who burn out are more likely to perceive overload, helplessness, and few meaningful accomplishments, and to undervalue their self-worth and their sport. While Smith does not stand alone in acknowledging the importance of

perception (e.g., Hodge et al. 2008; Lonsdale et al., 2009; Schmidt & Stein, 1991), his model is the only one to propose that motivational and personality factors influence cognitive appraisals.

In the third component termed Physiological Responses, demands viewed as threatening cause athletes to experience physiological arousal and emotions (e.g., tension, anger, anxiety, depression, insomnia, fatigue). At this time, athletes may or may not mobilize required resources to overcome the situation. Feedback from physiological responses is reappraised, and if interpreted as menacing, levels of stress and subsequent responses are intensified. This leads to the fourth component, Task and Coping Behaviors, whereby athletes attempt to cope with the situation through task and social output behaviors in the hopes of alleviating the chronic stress and negative physiological responses. Without the appropriate skills to alter negative perceptions and associated responses and to mobilize resources, athletes are likely to (a) adopt negative coping mechanisms and inappropriate behaviors (e.g., alienation, rigidity), (b) experience decreased levels of performance and interpersonal difficulties, and (c) potentially withdraw from sport. The physiological and behavioural consequences associated with the last two components of this model have consistently been replicated in athlete burnout studies. These include lethargy, decreased levels of motivation, frustration, lack of focus, injuries, mood disturbances, depression, decreased level of performance, and illness (Cresswell & Eklund, 2006; Goodger, Wolfenden, & Lavalley, 2007; Gould et al., 1996; Gustafsson, Hassmén, Kenttä, & Johansson, 2008).

As noted earlier, one of the unique characteristics of Smith's (1986) model is that it accounts for motivational and personality factors. According to Smith, these factors play an integral role in the development of burnout as they influence each of the four components within the model. While personality factors such as trait optimism may act as a buffer in the

development of athlete burnout (DeFreese & Smith, 2014), socially prescribed perfectionism (Hill, Hall, Appleton, & Kozub, 2008) and predispositional negative affect (DeFreese & Smith, 2014) may contribute to it. Extrinsic forms of motivation and amotivation also promote burnout (Isoard-Gautheur et al., 2012; Lemyre et al., 2006).

While Smith's model has received much attention and empirical support, Gustafsson and colleagues (2011) highlighted that one of the limitations of this model is that it is not grounded within an empirically-based definition of athlete burnout, such as that provided by Raedeke (1997). Smith's model was also criticized for an all-inclusive depiction of burnout failing to show that burnout may progress in different phases and that athletes can experience stress without necessarily burning out (Gustafsson et al., 2011). Furthermore, Smith's model does not overtly address the role of emotion in the development of burnout other than identifying a few basic emotional responses within the physiological component. Minimizing the role of emotion in the development of burnout is incongruent with Folkman and Lazarus' (1988) theoretical framework on which Smith's model is grounded. Folkman and Lazarus posited that stress and emotions fall under the same rubric and cannot be removed from one another. Thus, given the significant link between these two variables, Smith's model fails to sufficiently explain how emotions contribute to burnout.

In spite of these limitations, Smith's (1986) model offers an important gateway to understanding the burnout process. From a practical standpoint, the model's emphasis on appraisal allows practitioners to develop tailored interventions and provide athletes the opportunity to reflect and create change for themselves. By empowering athletes to become mindful of their perceptions and to mobilize skills aimed at altering cognitions that produce maladaptive responses and stress (Lu et al., 2016; Neely, Schallert, Mohammed, Roberts, &

Chen, 2009), autonomy, competence, and personal control may be enhanced, which is important in the process of alleviating and preventing burnout (Isoard-Gauthier et al., 2012; Raedeke, 1997). As such, given its empirical support and its applicability to interventions, Smith's model was used as a conceptual framework in the current research.

Stress and burnout among students-athletes. University student-athletes form a sub-component of the athletic population that may be at higher risk of stress and burnout. Over the last two decades, national surveys conducted with over 6500 Canadian undergraduate university students have shown that nearly half of them reported higher stress levels than non-students (Adlaf, Demers, & Gliksman, 2005; Adlaf, Gliksman, Demers, & Newton-Taylor, 2001). More recently, Durand-Bush, McNeill, Harding, & Dobransky (2015) examined levels of stress among undergraduate students in a Canadian university and found that at two different time points (November and March) in the academic year, students reported moderate to high levels of stress and low levels of mental health functioning. This is alarming given that student-athletes are said to be more vulnerable to compromised health and well-being since they face additional demands and stressors due to the dual role of student and athlete they must fulfill (Gould & Whitley, 2009).

Other sub-groups of the university student population also face higher levels of stress. For example, studies by Campbell, Svenson, and Jarvis (2012) and Misra and McKean (2000) revealed that female university students are significantly more likely to report higher levels of academic stress than their male counterparts. Also, when comparing first, second, and third year students, second year students had the highest level of stress and these differences were most apparent when compared to students in their third year. As such, second year students may not be provided with the same academic guidance as first year students and they may not have

developed appropriate coping skills acquired by more experienced students (Rawson, Bloomer, & Kendall, 2001).

Several factors contribute to student stress. While major life events such as break-ups and death of a family member are significant stressors (Frazier & Schauben, 1994), they occur much less frequently and thus may have a lesser impact on overall stress. In fact, students' daily hassles (e.g., changes in sleeping habits, new responsibilities, financial difficulties, increased workload) account for more than 80% of stressors perceived by university students (Ross, Niebling, & Heckert, 1999). A study drawing from samples from three different European countries also revealed that while relationship problems and isolation caused some concern, course work, preparation for exams, and uncertainty regarding post-education careers, were among the top stressors reported by the students (Mikolajczyk, Maxwell, Naydenova, Meier, & Ansari, 2008).

University sport can generate additional stress for students performing in this context, even though it can provide them with great life experiences. A qualitative study by Kimball and Freysinger (2003) revealed that student-athletes' stress was most often the result of their perceived lack of control and competence. Student-athletes in their sample also reported feelings of isolation, gender stereotypes, and social inequities within their sport (e.g., power struggles between the coach and the athlete). Anshel and Delany (2001) explained that when faced with significant stressors such as unfair calls from referees or mistakes during games, athletes tend to make negative appraisals, which typically leads to avoidance coping strategies. Failure to effectively cope with stressors can cause them to reappraise situations with a heightened sense of threat. In turn, this can lead to prolonged stress responses and negative outcomes (Lazarus & Folkman, 1984).

Positive associations between elevated stress and burnout were established by several researchers (Gould et al., 1996; Gustafsson, Kenttä, Hassmén, Lundqvist, & Durand-Bush, 2007; Smith, 1986), thus the high levels of stress experienced by student-athletes suggest that this population faces an increased risk of burnout (Gould & Whitley, 2009). While burnout can have negative repercussions on student-athletes' athletic experiences, these consequences can extend to their academic and personal life (Dubuc, Schinke, Eys, Battocchio, & Zaichkowsky, 2010). Interestingly, Durand-Bush, McNeill, and colleagues (2015) found that while university students reported moderate to high levels of stress and low mental health functioning at two time points (November and March) over an academic year, they concomitantly revealed high levels of well-being and a moderate capacity to self-regulate. This suggests that “although they experienced distress in the short term, this did not impact their global perceived psychological well-being and ability to function” (p. 267).

Well-Being

Conceptualizations of well-being. Stress and well-being have been simultaneously investigated in the past (Lazarus & Folkman, 1984, 1987), however, studies integrating both constructs in the context of sport are limited. Scholars have iterated that to gain a holistic understanding of athletes' stress-based burnout process, attention must also be paid to their well-being (DeFreese & Smith, 2014; Eklund, Dowdy, Jones, & Furlong, 2011). When examined through a positive psychology lens, well-being can be understood as optimal psychological functioning and experience (Ryan & Deci, 2001). In essence, positive psychology is grounded in the premise that psychological health can be measured by positive indices of quality of life and not simply the absence of negative psychological symptoms (Seligman & Csikszentmihalyi, 2000). DeFreese and Smith (2014) stressed that “a positive psychology vantage suggests sport

scientists should investigate markers of well-being [e.g., life satisfaction] concomitantly with those of ill-being [e.g., burnout] to comprehensively understand the global psychological health of sport-based populations” (p.620).

There are two general perspectives of well-being: hedonism and eudaimonism. Hedonism focuses on subjective happiness and the experience of pleasure (Ryan & Deci, 2001). In this case, well-being can be assessed by one’s level of life satisfaction, the presence of positive emotions, and the absence of negative emotions, which are thought to be a result of goal achievement (Diener & Lucas, 1999). In contrast, eudaimonism emphasizes self-actualization, flourishing, and optimal functioning. From this perspective, striving to achieve one’s potential is a key determinant of well-being (Ryff & Keyes, 1995). These two perspectives of well-being complement each other and could provide valuable insight into student-athletes’ burnout process, as these variables have seldom been examined together in the context of sport.

Relationship between well-being, stress, and burnout. Even though the research is limited, the relationship between well-being, stress, and burnout has been the subject of investigations in different contexts, including sport. According to self-determination theory (SDT; Ryan & Deci, 2000), the fulfillment of three basic psychological needs (i.e., autonomy, competence, relatedness) is crucial for psychological growth and well-being. Lending support to SDT, a recent study conducted within the sport of orienteering showed that athletes’ dissatisfaction of these three basic needs contributed to greater levels of stress and lower levels of well-being, and this was particularly true for athletes who possessed few psychological resources to cope with the various demands within their sport (Lundqvist & Raglin, 2015). With regards to the psychological need of relatedness, Davis and Jowett (2014) found that athletes who perceived low interpersonal conflict with their coach reported significantly higher levels of

positive affect whereas those identifying conflict and misunderstanding with their coach were uninterested and unhappy. Kimball and Freysinger (2003) also shed light on the role of coaches, reporting that controlling coaches who undermined athletes' sense of autonomy contributed to their experiences of stress. In another study with general university students, lower levels of well-being were reported by those who had experienced stressful life events over the course of a six month period in comparison to students who had not faced significant life stressors (Neely & al., 2009).

The negative relationship between stress and well-being, however, has not always been supported (Durand-Bush, McNeill et al., 2015). For instance, in one particular study with Canadian undergraduate students, Durand-Bush, McNeill and colleagues (2015) found that while students' levels of stress were elevated, so too were their levels of well-being. This confirms Keyes' (2002) findings that well-being and ill-being exist as separate but related constructs that contribute to overall functioning. A recent study with collegiate student-athletes showed similar results, whereby student-athletes reported high levels of well-being and trait optimism even though they experienced moderate levels of stress and burnout (DeFreese & Smith, 2014). However, the authors detected an increasing negative correlation between well-being and burnout as the participants' athletic season progressed, which suggests that student-athletes are not immune to ill-being even though they initially report high levels of well-being. To better understand how well-being and ill-being influence each other and how means to manage these should be put in place, Lundqvist and Raglin (2015) argued:

Information about the most significant factors contributing to the well-being status of elite athletes, as well as the interaction between various parameters could be useful in designing effective well-being interventions both to prevent ill-being and to assist

athletes to develop and grow psychologically in a stressful environment of elite sport.
(p.244)

Interventions Targeting Well-Being, Stress, and Burnout

Interventions aiming to improve well-being and prevent or reduce stress and burnout in sport are scarce, even though several scholars have demonstrated the need for intervention studies during the past two decades. Intervention studies can, however, be found in the occupational literature. Many of them have shown positive effects such as reduced stress, increased well-being, and increased motivation (Ahola et al., 2007; Cooley & Yovanoff, 1996; Leblanc, Hox, Schaufeli, Taris, & Peters, 2007; Malkinson, Kushnir, & Weisber, 1997; Peterson, Bergstrom, Samuelsson, Asberg, & Ngren, 2008; Pines & Aronson, 1983; Van Dierendonck, Schaufeli, & Buunk, 1998).

In sport, two burnout-related interventions have been reported: A generalized self-monitoring recovery program (Kenttä & Hassmén, 1998; 2002) and a single case mindfulness intervention (Jouper & Gustafsson, 2013). With a focus on overtraining and recovery, Kenttä and Hassmén (1998) integrated four categories in their self-monitoring program: (a) nutrition and hydration, (b) sleep and rest, (c) relaxation and emotional support, (d) stretching and active rest. Using perceived exertion and total quality recovery measures to self-monitor, the athletes were encouraged to engage in recovery activities related to the four categories in order to receive recovery points. While this type of intervention may have had positive psychophysiological effects, burnout, as opposed to overtraining, can be caused by many factors outside of the training environment. As such, this intervention approach could alleviate training-related stressors, however, it did not address some of the social and emotional dimensions associated with the burnout process. In contrast, the intervention examined by Jouper and Gustafsson

(2013) integrated the use of mindfulness techniques, weekly telephone meetings with a mental performance consultant, and daily meditation in order to increase the awareness of thoughts, emotions, and body sensations linked to subjective feelings of stress and energy levels in an effort to reduce burnout. While results were promising, this study was conducted with a single burned out athlete and the ABQ (Raedeke & Smith, 2001), which assessed the athlete's level of burnout, was distributed retrospectively. Specifically, once the intervention was completed, the athlete was asked to complete the questionnaire by recalling how she felt prior to the intervention, and she then completed a second questionnaire pertaining to her experiences. This data collection approach relying on recall is arguably a limitation of the study.

Other studies have provided evidence that cognitive behavioral therapy and mindfulness interventions can lead to enhanced athletic performance and well-being (Gardner & Moore, 2012; Thompson & Andersen, 2012). Yet, while these results are promising, they do not address athlete burnout. Given the lack of research examining the relationship between well-being, stress, and burnout in sport, it is impossible to deduce that these interventions could alleviate burnout symptoms. Goodger, Gorely et al. (2007) have been advocating that “research focusing on interventions remains largely unexplored” (p. 146), and that future research should focus on “the development, testing, and evaluation of intervention studies for the prevention, treatment and rehabilitation of individuals who have experienced burnout” (p. 147). Other scholars have followed suit, reiterating the need to examine interventions addressing athlete burnout (Eklund & Defreese, 2015; Lonsdale & Hodge, 2011; Lu et al., 2016). While there is no clear explanation for this gap in the literature, one potential reason may be that athletes in later stages of burnout may have already left the sport environment (Gould et al., 1996; Smith, 1986), compromising the pool of eligible research participants. Also, given that athletes experiencing burnout are likely to

be physically and emotionally exhausted (Raedeke, 1997) and unmotivated (Cresswell & Eklund, 2005; 2006; Lemyre et al., 2006), recruiting athletes to participate in intervention studies may be difficult. These challenges highlight the need to engage athletes early in interventions to prevent advanced stages of burnout and promote continued healthy participation and well-being in sport.

Despite the lack of intervention research, some studies have shown that athletes can and do implement strategies to manage stress and burnout symptoms (Gould, Finch, & Jackson, 1993; Kimball & Freysinger, 2003; Yi, Smith, & Vitaliano, 2005). However, their ability to cope with various stressors appears to be contingent upon certain factors. For example, Kimball and Freysinger (2003) shared that when athletes are provided autonomy in their decision-making and receive social support from friends and teammates, they are more likely to be motivated and to effectively manage stressors. Gould and colleagues (1993) found that national level figure skaters used 158 different types of problem and emotion-focused coping strategies to manage stressors, which highlights the complex and individualized nature of stress management. Athletes' most frequent strategies included rational thinking, self-talk, positive focus and orientation, social support, time management, task prioritization, goal setting, and anxiety management (Gould et al., 1993). In sum, these findings provide evidence that athletes do seek ways to overcome stress and stay healthy, which shows promise that they may be receptive to interventions to reduce stress and burnout. It also appears that self-regulation, a process underscoring autonomy, may be key in helping athletes to take charge of their health and well-being.

Self-regulation. Bandura (1986) proposed that people engage in self-directed behaviors and change when they understand how their thoughts, feelings, and actions influence their well-

being, and when they learn strategies (e.g., via interventions) to regulate these aspects of themselves. From a social-cognitive perspective, self-regulation involves planning, controlling, evaluating, and adapting thoughts, feelings, and actions in order to achieve personal goals in a constantly changing social and physical environment (Zimmerman, 2000). In other words, “regulation means change, especially change to bring behavior (or other states) into line with some standard such as an ideal or a goal” (Baumeister & Vohs, 2007, p.116). Baumeister and Vohs (2007) reported that there are four key ingredients for effective self-regulation, which would be important to address in interventions. The first is to establish well-defined standards and goals targeting desired behaviors (e.g., attend practice) and states (e.g., feel energized). The next ingredient is to engage in monitoring to compare current states and behaviors to pre-established standards and goals. The third involves drawing strength from existing limited sources, and the fourth relates to sustaining motivation to achieve preferred standards and goals. While it was suggested that all four ingredients are necessary for effective self-regulation, a strong presence of one of the ingredients can compensate for the lack of another (Baumeister & Vohs, 2007).

The inability to effectively self-regulate can lead to difficulties in managing daily issues and can be detrimental to optimal functioning (Vohs & Baumeister, 2004). In contrast, high self-regulation capacity can generate positive outcomes. For example, college students’ elevated self-regulation skills were associated with positive adjustment (e.g., low depression, anxiety, and stress; Park, Edmondson, & Lee, 2012) and high well-being (Hofer, Busch, Kärtner, 2011). Durand-Bush, McNeill, and colleagues (2015) postulated that effective self-regulation may have buffered university students’ high stress and low mental health functioning levels, allowing them to simultaneously experience high well-being. Of particular relevance, these authors stated:

Self-regulation training within the university context could possibly help students to proactively or reactively manage their levels of mental health functioning and shift from being ambivalent, at risk, or distressed to being well-adjusted and highly functioning even in the face of stress and adversity. (p.268)

Importantly, self-regulation does not develop automatically nor can it be passively acquired. Therefore, systematic interventions can provide a process in which self-regulatory skills can be taught and acquired (Schunk & Zimmerman, 2003). This suggests that athletes in the process of burning out may benefit from participating in a self-regulation intervention guided by a trained facilitator to develop necessary skills to regain any diminished control of thoughts, feelings, and behaviors and better adapt to their environment as a result of chronic stress.

Feel-based self-regulation interventions. While burnout-specific interventions in sport are sorely lacking, other types of interventions have been conducted with healthy athlete populations that can shed light on the development of interventions for vulnerable athletes. For example, Durand-Bush and colleagues carried out several feel-based, person-centered, self-regulation interventions with athletes, which led to perceived enhanced performance and well-being (Arcand, Durand-Bush, & Miall, 2007; Callary & Durand-Bush, 2008; Collins & Durand-Bush, 2010; Doell, Durand-Bush, & Newburg, 2006; Lussier-Ley & Durand-Bush, 2009). With a central focus on the regulation of felt experiences, these interventions took a proactive and empowering approach to the achievement of desired performance and well-being. They allowed the athletes to be principal agents in the process of defining desired felt experiences and creating necessary personal and situational change to consistently produce these experiences. When evaluating feelings, the athletes were in a position to determine the presence and absence of positive and negative affect and address the hedonic component of their well-being (Diener, Suh,

Lucas, & Smith, 1999). As part of self-regulatory practices to enhance well-being, athletes also reflected on and appraised their sport and life, whereby they judged the extent to which their experiences measured up to their expectations and were congruent with their envisioned “ideal” selves (Diener et al., 1999; Vohs & Baumeister, 2004). Increased self-awareness and self-efficacy played a key role in controlling responses to obstacles and setbacks and achieving desired standards and goals. Of interest, developing self-regulation capacity through these interventions was effective in both individual and team sport settings (Callary & Durand-Bush, 2008; Collins & Durand-Bush, 2010; Lussier-Ley & Durand-Bush, 2009).

Resonance performance model. These aforementioned interventions were guided by the Resonance Performance Model (RPM, Callary & Durand-Bush, 2008, see Figure 2 in Appendix B). Resonance was defined as a self-regulatory process in which athletes strive to experience a seamless fit between their inner self and external environment (Newburg, Kimiecik, Durand-Bush, & Doell, 2002). In other words, they endeavour to increase harmony or congruency between their inner states (e.g., feelings, thoughts, attitudes) and their social and physical environment (Vohs & Baumeister, 2004). The resonance approach is different than other self-regulation perspectives in that it is grounded in subjective, multidimensional, dynamic felt experiences, which are mediated by athletes’ capacity to perceive, to be aware of, or to be conscious of *both* their inner states and their environment (Simon & Durand-Bush, 2009). As such, resonance is an approach aiming to explore emotional, cognitive, physical, social, and spiritual dimensions of experiences and life (Simon & Durand-Bush, 2009).

The RPM comprises the following four components: (a) The Way One Wants to Feel (i.e., ‘Your Feel’), (b) Preparation, (c) Obstacles, and (d) Revisit The Way One Wants to Feel (i.e., ‘Revisit Your Feel’). The first component, *Your Feel*, is the foundation that informs all other

components within the model (Callary & Durand-Bush, 2008). It is the phase in which athletes identify how it is they want to feel in different situations and contexts such as during training and competition (i.e., preferred standards, Carver & Scheier, 1998; Vohs & Baumeister, 2004). Due to the multidimensional nature of felt experiences, athletes explore how they feel and want to feel physically (e.g., I want to feel strong and healthy), cognitively (e.g., I want to feel alert and present), emotionally (e.g., I want to feel happy and excited), socially (e.g., I want to feel supported by my teammates and coach), and spiritually (e.g., I want to feel at peace with myself). These dimensions of felt experiences that are considered relevant and meaningful to athletes can evolve across time, situations, and contexts, which emphasizes the continued need for self-awareness, self-monitoring, and self-reflection in the process of self-regulation (Guérin, Arcand, & Durand-Bush, 2010; Zimmerman, 2000).

Next, within the *Preparation* component, individuals reflect on what enables them to feel the way they want as often as possible in different situations and contexts. They identify, develop, and implement skills and strategies that allow them to consistently experience their desired feel while striving to perform and achieve their goals (Newburg et al., 2002). Much like the concept of feel, preparation is subjective and multifaceted and can include physical/physiological, cognitive, technical, tactical, social, organizational, and/or emotional types of strategies. For example, athletes' preparation strategies have included proper stretching, sleep, and nutrition (i.e., physical/physiological), imagery, self-talk, and goal-setting (i.e., cognitive), communication (i.e., social), and competition planning (i.e., organizational, Callary & Durand-Bush, 2008; Collins & Durand-Bush, 2010; Doell et al., 2006; Newburg et al., 2002). In this process, individuals aim to increase the congruency between their thoughts, feelings, and behaviours within their larger context of performance.

Within the third component, *Obstacles*, athletes identify what prevents them or could prevent them from feeling the way they want and achieving their goals. Whether these obstacles are internal (e.g., self-doubt, fear, negative thoughts) or external (e.g., parental pressure, lack of communication with coach, Collins & Durand-Bush, 2010), the resonance process gives athletes the opportunity to anticipate barriers and observe how they respond to them. Typically, obstacles distance athletes from their desired feel, however, with the next component of the RPM, they can plan how to best respond to them and if possible, overcome obstacles altogether (Guérin et al., 2009; Simon & Durand-Bush, 2009).

In the final component of the RPM, *Revisit your Feel*, athletes reflect on and identify ways in which they can re-experience their desired feel after struggling as a result of obstacles. The skills and strategies implemented in this phase of the resonance process are often similar to those in the preparation phase. However, they can differ based on whether or not they are applied immediately after encountering an obstacle (e.g., breathe to calm down) or later, at a more opportune time (e.g., call a friend, reflect deeply on a particular action). Furthermore, strategies can be performance (e.g., discuss tactic with coach) or non-performance related (e.g., listen to music, Arcand et al., 2007; Callary & Durand-Bush, 2008; Doell et al., 2006). What is important is for athletes to determine and focus on what is meaningful to them in order to remain motivated, satisfied, and energized in their quest to meet their goals (Callary & Durand-Bush, 2008). This is possible due to the person-centered approach utilized in all feel-based, self-regulation interventions.

Implementing such feel-based, self-regulation interventions with athletes experiencing stress and burnout seems to be appropriate for several reasons. First, much like the resonance process, burnout is holistic and includes psychological, emotional, social, and physical

components (Smith, 1986). The encompassing nature of the RPM guiding interventions would allow athletes to explore different facets of their felt experiences and environment. Second, it has been shown that resonance as a self-regulatory approach extends beyond improving performance to also focus on overall functioning and well-being (Simon & Durand-Bush, 2009), which, as discussed previously in the literature review, would be of relevance for athletes experiencing stress and burnout. Third, working through the obstacles and revisiting components of the RPM would allow athletes to identify barriers, such as stressors, that are preventing them from achieving and regulating desired experiences and assist them in developing required coping strategies. Next, resonance-based interventions focus on empowerment and autonomy, and as such, have been linked to increased feelings of control (Arcand et al., 2007; Guérin & Durand-Bush, 2010). This is significant for athletes experiencing burnout, who typically perceive a lack of control (Coakley, 1992; Cresswell & Eklund, 2006). Lastly, while learning to self-regulate using a resonance approach was beneficial in both individual (Arcand et al., 2007; Doell et al., 2006) and team sport settings (Callary & Durand-Bush, 2008; Collins & Durand-Bush, 2010; Lussier-Ley & Durand-Bush, 2009), individual interventions appear to be most appropriate with burned out athletes given their vulnerability, the sensitivity of topics discussed, and athletes' highly individualized experiences of burnout (Gustafsson et al., 2007).

Rationale and Significance of the Study

The growing concern regarding stress and burnout in athletic populations and the lack of interventions to address these concerns provided the rationale for conducting the current research. Despite several recommendations (Goodger, Gorely et al., 2007; Gustafsson et al., 2011), only two studies to date have shed light on burnout-related interventions designed for athletes (Jouper & Gustafsson, 2013; Kenttä & Hassmén, 1998; 2002). Consequently, the current

research will make a significant contribution to the field of sport burnout by being the first to document the implementation and impact of a comprehensive self-regulation intervention specifically designed to reduce athletes' stress and burnout symptoms, and improve their well-being and self-regulation capacity. This research will also help pave the way for the development of future interventions with vulnerable sport populations.

Purpose of the Study

The overall purpose of this research was to investigate the implementation and impact of an individual, feel-based, person-centered, self-regulation intervention on the levels and experiences of stress, burnout, well-being, and self-regulation capacity of university student-athletes with moderate to high levels of burnout. The following four specific objectives guided this research and were addressed in separate scholarly articles:

- (a) Examine the levels of burnout among student-athletes at two Canadian universities and investigate whether there are significant differences related to gender, sport, year of university sport participation, academic year, and academic program.
- (b) Implement and assess the impact of a self-regulation intervention on the stress, burnout, well-being and self-regulation capacity of university student-athletes experiencing moderate to high levels of burnout.
- (c) Investigate the intervention process and experiences of student-athletes by chronologically presenting their stories in order to address how they developed their self-regulation capacity over the course of the season, and the strategies they used to influence their experiences of stress, burnout, and well-being.

- (d) Investigate the integration and adaptation of the Cognitive-Affective Stress-Based Burnout Model (CASBBM) to facilitate positive changes in student-athletes participating in an individual self-regulation intervention to alleviate burnout symptoms.

Part II

Supplemental Methods

The following supplemental methods section complements the methods described in the four articles in the Results section. The methods in these articles were limited due to space constraints imposed by the journals for which they were written, thus this supplemental methods section more specifically outlines how the research paradigm and mixed-methods design informed the current research. In addition, it addresses the pilot study and bracketing interview conducted to enhance trustworthiness, as well as the demographic profile of the student-athletes who participated in the intervention phase. Finally, the data collection and analysis procedures are described in greater detail in the chronological order in which they occurred.

Participatory Research Paradigm

The current research was guided by the participatory paradigm, a perspective based on action that advocates the role of practical knowledge as a contributor to human flourishing (Heron & Reason, 1997). A fundamental principle of this paradigm is that people are capable of interpreting and understanding their own behavior. As such, research is guided by the values of all parties involved and evolves as issues are discussed (Reason & Riley, 2008). Given the assumption that experiences are shaped by others, this approach is centered on collaboration between the researcher and the participants throughout the research process (Heron & Reason, 2008; Reason & Riley, 2008). Lincoln, Lynham, and Guba (2011) explained that within the participatory paradigm, “experiential knowledge is achieved through face-to-face learning” through which the “participant and researcher engage together in democratic dialogue” (p.105). Consequently, in line with the ontology from the participatory world view, the participant-driven intervention and mutual exchanges with the researcher were at the core of research process and

grounded within objective-subjective reality. Mutual experiential knowing and understanding emerged as a result of relationship between participant and researcher as well as their participative awareness within the learning process (Heron & Reason, 1997).

The researcher was an important facilitator of change in the current research and a key player in engaging in and promoting face-to-face learning during the intervention. The researcher, who played the role of a mental performance consultant and was a member of the Canadian Sport Psychology Association, allowed for the development of shared meaning and a high level of critical subjectivity from both parties (Heron & Reason, 1997). Specifically, the researcher's active stance was a strength, particularly in the early intervention phase, in order to provide the required educational elements of the intervention (e.g., teaching concepts, introducing new self-regulation skills). Nonetheless, the researcher promoted autonomy and instilled confidence throughout the process, encouraging the student-athletes to continually provide their insight and share ideas and feedback. As the intervention progressed and the student-athletes grew more confident, the researcher played a less active role, stepping back and encouraging them to trust themselves to apply the skills they learned. The student-athletes were encouraged to answer their own questions, which led to greater opportunities for reflection and discussion. This approach is in line with the axiology of the participatory worldview, which emphasizes the value of practical knowing and human flourishing by fostering a sense of autonomy and cooperation between researcher and participant toward positive change and goal achievement (Heron & Reason, 1997). Fostering self-awareness, self-reflection, and self-direction is key in self-regulation interventions (Callary & Durand-Bush, 2008; Collins & Durand-Bush, 2010; Zimmerman, 1996) and promotes the development of knowledge, an important premise of the participatory paradigm (Heron & Reason, 1997). Since burnout has

been associated with a perceived lack of autonomy and competence (Hodge et al., 2008), implementing a participatory research process in which the student-athletes' feelings of empowerment could be nurtured was another key motive for adopting this paradigm. From a different perspective, this research also created a unique learning opportunity for the researcher, one that allowed her to feel empowered and to gain confidence in her role as a facilitator of self-regulation interventions designed to improve burnout symptoms.

Finally, another goal of this paradigm is to capture and communicate participants' viewpoints and experiences in a way to reflect, as closely as possible, their lived accounts (Natasi & Schensul, 2005), which was an important aim in the current research. The student-athletes' distinctive realities, including their personal development throughout the interventions and their unique experiences of stress, burnout, well-being, and self-regulation were articulated using different methods. The goal was not to generalize but rather highlight the richness of the student-athletes' various realities (Creswell, 2007), which was crucial since burnout is an individualized process (Gustafsson et al., 2008). The researcher's experiences and insights were also recorded through personal journal entries and discussed with the research supervisor throughout the process.

Mixed-Methods Research Design

In order to provide a comprehensive and authentic account of the student-athletes' realities, a mixed-methods design was employed (Creswell & Plano-Clark, 2007). The participatory paradigm supports the use and integration of qualitative and quantitative findings. According to Lennie (2006), methodology grounded within the participatory paradigm should foster mutual trust and open communication, integrate the use of multiple theoretical frameworks and sources of data collection, and promote ongoing evaluation and critical reflection. The

methodological choices inherent to the current research adhere to these recommendations. For example, the researcher built rapport and trust with the student-athletes and promoted honest communication during the exchanges that took place throughout the research process. Furthermore, in addition to blending two theoretical frameworks (i.e., CASBBM and RPM) to deliver the interventions, results were generated by using varying sources of data collection such as questionnaires and transcribed interviews and intervention sessions. Lastly, critical reflection and evaluation were fostered through the use of multiple coder checks and debriefs, member checking, a panel of external reviewers, and a researcher journal.

Bryman (2007) suggested that when properly integrated, quantitative and qualitative findings are mutually informative as they “talk to each other, much like a conversation or debate and the idea is then to construct a negotiated account of what they mean together” (p. 21). A mixed-methods design was particularly relevant in the current research since it allowed the research questions to be examined from different vantage points. It also facilitated a thorough interpretation of the effects of the individual interventions (Natasi et al., 2007).

Concurrent transformative design. This research followed a concurrent transformative design, which was deemed most suitable based on Creswell’s (2003) six different mixed-methods strategies. A concurrent approach consists of collecting two types of data at once and the priority may be given to either sets of data depending on the researcher’s interests and the research objectives (Creswell, 2003). Given the extent of the qualitative data collected in this research and the emphasis of the participatory paradigm on understanding and conveying rich accounts of participants’ experiences, priority was given to qualitative findings. Nonetheless, the quantitative data collected during the first phase (i.e., screening phase) of the two-phase research project, particularly to recruit burned out participants for the interventions, were crucial (**Article**

1). Quantitative data were also gathered in the second phase (i.e., intervention phase) of the research, that is, before, during, and after the interventions (**Article 2**) to complement the participants' qualitative accounts of stress, burnout, well-being, and self-regulation. Still, the substantial qualitative data emerging from the numerous interviews and intervention sessions conducted with the student-athletes in the second phase provided the contextually-rich data that guided the investigation of chronological experiences and changes throughout the intervention process (**Article 3**), and of the integration and adaptation of Smith's CASBBM (**Article 4**). While the quantitative data helped to determine the "what", the qualitative data helped to depict the "how" and "why" of the participants' realities and experiences.

The concurrent transformative strategy promotes the use of conceptual frameworks to guide research and methods that best serve these frameworks (Creswell, 2003). This allows researchers to "better understand a phenomenon or process that is changing as a result of being studied" (Creswell, 2003, p. 216). In the current research, the CASBBM (Smith, 1986) and the RPM (Callary & Durand-Bush, 2008) were used as guiding conceptual frameworks. The objective of the research was to not only capture the current realities of student-athletes with regards to stress, burnout, well-being, and self-regulation, but also document their process of participating in the interventions, which were anticipated to have a transformative effect on them. The "transformative" nature of the strategy fit well with the objective to depict and understand changes and to draw strong inferences based on the integration of the two sets of data (Creswell, 2003).

Multiple case study approach. In order to capture the student-athletes' realities and experiences in the second phase of the research, a multiple case study approach was employed. A multiple case study approach allows the investigation of "a contemporary phenomenon in depth

and within its real-life context” (Yin, 2009, p. 18). The use of this approach was appropriate due to the longitudinal and in-depth nature of the individual interventions and the researcher’s aim to explore and articulate the unique and complex experiences of the student-athletes (**Article 3**). A multiple case study approach can be utilized in combination with quantitative and qualitative research methods (Yin, 2003) and can integrate various sources of evidence in order to converge data in a triangulating fashion (Yin, 2009).

Researcher Preparation

As previously mentioned, in line with the participatory paradigm (Reason & Riley, 2008), the researcher played an integral role throughout the research. Consequently, the researcher engaged in significant preparation to ensure that she could effectively carry out the different steps of the research and facilitate the interventions with an adequate level of comfort and experience. This preparation involved, amongst other steps, a pilot study and a bracketing interview.

Pilot study. According to Van Teijlingen and Hundley (2010), pilot studies are understood as “mini versions of a full-scale study, as well as the specific pre-testing of a particular research instrument such as a questionnaire or interview schedule” (p.49). Conducting a pilot study is an important step in a strong research design. In the current study, the researcher conducted a pilot study with a university student-athlete to test the quantitative and qualitative methods as well as the intervention protocol. After obtaining the student-athlete’s consent (see consent form in Appendix C), a pre-intervention interview (see guide in Appendix D), three intervention sessions (see guide for Session 1 in Appendix E and guide for the remaining sessions in Appendix F), and a post-intervention interview (see guide in Appendix G) were conducted with the student-athlete over a five-week period. The researcher also engaged the

student-athlete in the journaling process to test it (see journaling handouts in Appendix H and I). All sessions were audio-taped and reviewed by the researcher and her supervisor. With regards to the quantitative methods, the student-athlete completed the four self-report questionnaires at various time points to test them. They included the: (a) ABQ (Raedeke & Smith, see Appendix J), (b) Perceived Stress Scale (Cohen, Karmack, & Mermelstein, 1983, see Appendix K), (c) Warwick-Edinburgh Mental Well-Being Scale (WEMWBS, Tennant et al., 2007, see Appendix L), and (d) Short Version of the Self-Regulation Questionnaire (Carey, Neal, & Collins, 2004, see Appendix M). The participant's baseline scores demonstrated low burnout as well as moderate stress, well-being, and self-regulation capacity. Although burnout did not change as it was already low, the student-athlete's post-intervention scores revealed improved stress, well-being, and self-regulation. Given that the screening phase of the research project had to be implemented in early Fall, the pilot study took place over the summer months and the student-athlete had just begun her pre-season training. She was also pursuing graduate studies, thus she was able to learn and apply self-regulation strategies to manage the demands related to both her thesis and pre-season workouts.

During the post-intervention interview, the student-athlete shared that the intervention allowed her to gain a more positive perspective on life and regulate how she felt more consistently. When asked about her overall experience, she shared: "I loved it. I think the intervention is going to work for a lot of people. What I really liked about it was that the floor was kind of open for me to talk and I liked the questions, how you made me think about it and come to my own kind of conclusions". Taken together, the evaluation of the methods and protocol, and the positive feedback shared by the student-athlete provided support for carrying out the actual research. While the pilot study did not lead to any concrete changes to the

interview and intervention session guides, it did allow the researcher to reflect on the use of various probing questions. The researcher also learned that the content of the pre-intervention interview guide was crucial as it provided the foundation to discuss various key concepts (e.g., self-regulation, well-being), which were relatively unfamiliar to the student-athlete.

Bracketing interview. Upon completion of the pilot study, the researcher took part in a bracketing interview with her supervisor, who has extensive training and knowledge in qualitative interviewing. The goal of a bracketing interview is to familiarize the researcher with the interview questions by critically examining each question through a respondent's perspective. Furthermore, the bracketing interview aims to bring to light any pre-conceived assumptions or biases that the researcher may have in order to allow her to take necessary precautions when collecting and interpreting data (Ahern, 1999). It also allows the researcher to reflect on how best to resolve potential scenarios and access, analyze, and represent the participants' voices (Rolls & Relf, 2006).

The bracketing interview was especially relevant in the current research due to the fact that the researcher had prior experiences in competitive sport, from which she could potentially draw inferences. Specifically, during the 90-minute interview, questions and role-play guided the researcher to reflect on the following topics: (a) reasons for which she chose to examine burnout experiences within the targeted population, (b) anticipated findings concerning levels of stress, burnout, well-being, and self-regulation capacity (c) anticipated factors contributing to student-athlete burnout, (d) best approaches to provide feedback and play a facilitative and educational role in the intervention process, (e) ways to manage sensitive information shared by participants, and (f) steps for referral if serious or clinical issues emerge. Engaging in this reflective process

allowed the researcher to gain a greater awareness of her role in the research process and to better understand the potential implications of the project.

Participants

Congruent with the participatory paradigm, the sample consisted of both university student-athletes and the researcher.

Student-athletes. While each of the articles presented in the Results section reveals different aspects of the student-athletes who participated in the screening and intervention phase of the study, a comprehensive demographic profile of the eight participants who took part in the intervention was not included. As such, the following table gives an overall snapshot of these participants. It is noteworthy that some demographic information (e.g., program of study) was purposefully excluded so as to not compromise anonymity. In total, there were four male and four female student-athletes who took part in the intervention. Their age ranged from 17 to 23 years, with an average age of 20 years. Every academic year and year of sport participation was represented. The student-athletes competed in hockey, swimming, basketball, and fencing. Finally, burnout scores varied within and across dimensions, however, mean scores for the physical and emotional exhaustion (PEE), reduced accomplishment (RA), and sport devaluation (DV) subscales were 3.55, 3.45, and 2.15, respectively. To be eligible to participate in the intervention phase of the research, the student-athletes had to score over 3.0 or higher on the PEE and RA subscales of the ABQ (Raedeke & Smith, 2001, see Appendix J), as these two dimensions are known to be early indicators of burnout (Cresswell & Eklund, 2006; Goodger, Wolfenden et al., 2007; Gustafsson et al., 2008).

*Table 1**Participant demographic profiles*

Participant	Gender	Age	Year of		Sport	PEE	RA	DV
			Academic	sport				
			year	participation				
A	Male	23	3	3	Hockey	3.2	3.8	3.2
B	Female	17	1	1	Swimming	3.4	3.8	2.2
C	Female	18	1	1	Hockey	4.2	3.4	2.8
D	Female	19	2	2	Basketball	4.4	3.2	1.8
E	Male	22	2	1	Hockey	3	4	2.2
F	Female	21	4	4	Fencing	3.4	3.2	1
G	Male	19	1	1	Swimming	3	3.2	1.4
H	Male	22	3	3	Hockey	3.8	3	2.6

Note: Screening phase burnout scores: PEE = Physical and emotional exhaustion; RA = Reduced accomplishment; DV = Sport devaluation

Researcher. As a participant in the study (Heron & Reason, 1997), the researcher played an active role in guiding the student-athletes through the individual self-regulation interventions by tailoring each session to meet their specific needs and by helping them engage in a reflective process. As a professional member of the Canadian Sport Psychology Association, the researcher had the requisite competencies to conduct interventions in sport, physical activity, and health contexts. In fact, she had spent over 300 hours engaging in mental performance consulting specifically with university student-athletes prior to conducting the study. The researcher also had acquired knowledge and skills by completing several graduate courses pertaining to research methods, counselling, mental training, and ethics. In addition, she had research experience in the

field of burnout as this was the topic of her Master's degree thesis. Her consulting experience and familiarity with this area of research allowed her to be adequately prepared to carry out the project.

Data Collection

As previously discussed, a mixed-methods concurrent transformative design was used to collect both quantitative and qualitative data in this research (Creswell, 2003). While the four articles in the Results section capture many data collection details (e.g., recruitment, quantitative measures, intervention process), data collection procedures were limited to the research objective of the study in question, therefore making it difficult to see the entire process. Consequently, the following section aims to provide a holistic depiction of the data collection process by chronologically presenting the various steps and weaving in both quantitative and qualitative data that were collected (see Table 2 in Appendix N). While some information that was included in the articles is briefly shared here to provide context, the focus is on details that have not been extensively captured in the articles (e.g., journaling and intervention process).

Screening phase. In late August, the researcher contacted coaches from two Ontario universities through email in order to gain access to potential student-athlete participants. Recruitment was limited to sport teams that were accredited within the Canadian Interuniversity Sport (CIS) system and had a season spanning a minimum of five months. These criteria ensured that the season was sufficiently long to implement the intervention and competitive demands were relatively consistent. While a few coaches did not respond or expressed that they were not interested, the researcher gained access to 10 different teams. She met with the student-athletes and coaches of each team during the first week of October to describe the study and also to distribute the consent form (see Appendix O), the demographic questionnaire (see Appendix P),

and the ABQ (see Appendix J) to student-athletes who were interested in participating. A total of 147 student-athletes from 10 different teams (i.e., two male and two female hockey teams, one male and two female basketball teams, one female volleyball team, one mixed fencing team, and one mixed swimming team) signed the consent form and completed the questionnaires in person during the 20-minute meeting, after which they returned the documents to the researcher. Two participants completed less than 50% of the ABQ, therefore their scores were not retained. The final sample for the screening phase thus consisted of 145 student-athletes.

Over the course of the next two weeks, the researcher inputted the scores of the 145 student-athletes who completed the questionnaires and sent an invitation by email to those who met the eligibility criteria (3.0 or higher on the PEE and RA subscales of the ABQ) and had checked a box to participate in the intervention phase on their consent form. A total of 15 student-athletes met the selection criteria. Their burnout scores were ranked from highest to lowest and students were contacted in this order. The sample was purposefully delimited to eight participants given the breadth and depth of the individual self-regulation interventions. Out of the top eight student-athletes on the list who were contacted, only seven of them agreed to participate, thus the ninth participant on the list was contacted and agreed to take part in the intervention (see details regarding participant selection in Article 4).

Intervention Phase. The intervention phase included a pre-intervention interview, the intervention comprised of multiple sessions, and a post-intervention interview. All of the interviews and intervention sessions were scheduled based on a timeline set by the researcher and the student-athletes during the pre-intervention interview. Even though the researcher had targeted specific weeks for each of the intervention sessions and the post-intervention interview to occur, she remained flexible on the dates in order to accommodate the athletes' busy

schedules, including their exam periods. While the pre-intervention interview was organized with the student-athletes via email, their subsequent intervention sessions and post-intervention interview were scheduled in person at the end of each session. Student-athletes who had questions or wanted to change the schedule communicated with the researcher via email or text.

Pre-intervention interview. The pre-intervention interview with the eight student-athletes occurred toward the middle of October. It was individually conducted in person in a private office on campus, and lasted between 45 and 60 minutes. The pre-intervention interview had several purposes. First, participants were asked to review and complete the consent form (see Appendix Q) to participate in the intervention phase of the project. Through the use of a semi-structured interview guide (see Appendix D), the researcher first aimed to gain relevant information regarding the participants' personal background and sport and build rapport with them by briefly describing the intervention process as well as her role. Next, the researcher sought to promote awareness of the various concepts relevant to the intervention (i.e. stress, burnout, well-being, self-regulation) through reflective questioning and by providing some examples and definitions to enhance the student-athletes' understanding of these concepts. Lastly, while burnout scores had been measured two weeks back during the screening phase, the pre-intervention interview served to gain additional baseline quantitative data in order to assess levels of stress, well-being, and self-regulation capacity (see Article 2 for information regarding the four self-report measures).

Intervention sessions. Two weeks following the pre-intervention interview (end of October), the student-athletes began the individual, feel-based, person-centered self-regulation intervention, which comprised 7 to 9 bi-weekly sessions depending on the length of their competitive season. All intervention sessions were individually conducted in person in a private

office on campus and lasted between 40 and 60 minutes. In the first session, the researcher used a semi-structured guide (see Appendix E) to initiate in-depth reflection on the four components of the RPM and the four components of the CASBBM. Specifically, the student-athletes were guided to identify their preferred standards (i.e., the way they wanted to feel) as well as any discrepancies between how they currently felt and how they wanted to feel. They also established long and short-term goals (e.g., improve marks and class attendance) and they discussed various strategies they used or could use to achieve their standards and goals based on past experiences and skills (i.e., preparation). In addition, student-athletes shared significant stressors (i.e., obstacles), ways they cognitively appraised them, how these impacted their thoughts, feelings, and behaviors in academic and athletic contexts, if and how they had ever been able to overcome these stressors, and consequences of not overcoming them. Lastly, the athletes reflected on whether or not they were able to reconnect with their preferred standards (i.e., revisit the way they wanted to feel) after facing stressors (i.e., obstacles) in past situations and derive lessons from this. Toward the end of the first intervention session, the student-athletes were also introduced to the journaling process, which will be described later in this section.

The second intervention session was held two weeks later (early November). While the content varied across participants based on needs, interests, and preferences, the researcher used a semi-structured interview guide developed for this intervention session and all subsequent ones (Appendix F). It served to facilitate discussion pertaining to the student-athletes' current perceived levels and experiences of stress, burnout, well-being, and self-regulation as well as adaptations deemed necessary to achieve preferred standards and goals. During the fourth intervention session (early December), the student-athletes completed all four self-report measures again so that changes across time could be quantitatively assessed. The rest of the

intervention sessions were held approximately every two weeks until the end of each student-athletes' athletic season (early February to end of March) with the exception of a three-week break over the Christmas holidays. The student-athletes completed the self-report measures once more during the last intervention session.

The open-ended and flexible structure of the aforementioned intervention sessions allowed the student-athletes to discuss various components of the CASBBM, including situations that were negative (e.g., I am upset with my coach because he's expecting too much from me) and positive (e.g., I had more sleep and it really helped). In these situations, the student-athletes examined their cognitive appraisals (e.g., I think of my coach and I'm starting to see him more as a challenge). Furthermore, they explored their responses to negative and positive situations (e.g., I am feeling really helpless and used) as well as their task and coping behaviours (e.g., I will go talk to my coach to get a better idea of what my role is on the team).

Given the self-regulation focus of the intervention, each session also touched upon the components of the RPM, enabling the student-athletes to identify their preferred standards and goals and ways to regulate and adapt them as necessary. In other words, the student-athletes established and regularly revisited standards of performance and well-being (e.g., I want to feel healthy, confident, and in control) and realistic goals (e.g., I want to pass all my exams) and ensured these were congruent. This involved developing and implementing meaningful strategies to attain them (e.g., get 8 hours of sleep, create a study schedule) based on resources available to them (e.g., meet with an academic advisor) and their current level of knowledge, skills, and attributes (e.g., I am not motivated to attend classes). They also learned to identify and anticipate obstacles or barriers (e.g., I go out drinking with friends too often, which leads me to feel drained and hungover and skip classes), and effective ways to revisit their preferred standards (e.g., I

want to feel healthy, confident, and in control so I will limit the number of nights I go out during the week and check in after every drink when I do go out to know when to stop).

It is noteworthy that for some student-athletes, new negative (e.g., stressful) situations and self-regulation strategies emerged each session whereas for others, the same situations (e.g., chronic stressors) and debilitating responses were discussed on a regular basis over the course of various sessions. Of importance, each session was informed by not only the intervention session guide but also the content of previous sessions and journal entries (see below). According to Cresswell and Eklund (2007), experiences of burnout vary throughout a season. Therefore, following the student-athletes over a five-month period allowed the researcher to capture changes in their experiences of stress, burnout, well-being, and self-regulation and to note the varying effects of the intervention as the season progressed. Tapping into key self-regulation processes such as student-athletes' forethinking (i.e, preparation), self-monitoring, and self-reflection (Zimmerman, 2000) was key and this was in part accomplished through journaling.

Journaling. The student-athletes were guided through the use of three different journaling methods in order to engage in daily reflection throughout the intervention (e.g., sport, academic, social situations). In particular, they were asked to identify what they felt and thought and how they behaved in relation to their preferred standards and goals. They were encouraged to use any or all of the journal options below based on their preferences:

- (a) Daily profile sheets in which they used a graph to depict the extent to which they felt the way they wanted over a 24-hour day. In the 'Reflection and Lessons Learned' section, they had the opportunity to discuss anything relevant, including perceived levels of stress, burnout, well-being, and self-regulation capacity, as well as strategies they implemented and their level of effectiveness (see Appendix H).

- (b) Daily reflections concerning their levels and experiences of stress, burnout, well-being, and self-regulation, and their overall lessons learned (see Appendix I).
- (c) Free-writing in a notebook by reflecting on their daily experiences and how these influenced their thoughts, feelings, and behaviors.

The researcher recognized that the student-athletes were often feeling overwhelmed by competing sport and academic demands, thus journaling was presented as a flexible and adaptable tool based on their interests, engagement, and time restrictions. Furthermore, previous research showed that journaling is typically most useful in the early phases of the intervention (Arcand et al., 2007; Callary & Durand-Bush, 2009). Consequently, the participants were encouraged to complete the journal every second day or a minimum of three times per week over the course of the first few months of the intervention. Participants then re-evaluated the use of the journal with the researcher. While some continued to complete entries throughout intervention, others opted to stop since they had put in place other effective self-monitoring and self-reflection means (e.g., mental check-ins three times per day). The participants were assured that the journal entries would not be collected or used as research data. Rather, they were encouraged to regularly review them in order to gain awareness and insight into their daily experiences. The researcher also encouraged the participants to bring their completed journal entries to the intervention sessions to guide various elements of the discussion (e.g., strategies put in place to increase level of well-being during the two-week period).

Researcher's logbook. In order to gain a better understanding of the student-athletes' experiences and provide transparency in the methodological steps followed, the researcher maintained her own reflective journal (i.e., logbook) throughout the research process. Entries captured important elements or markers during interventions, potential probes to use during

subsequent intervention sessions, and general comments regarding the effectiveness and consequences of actions. In essence, these were used to keep an audit trail and make preliminary interpretations (Maxwell, 2002). As the research progressed, the researcher also began noting her own personal experiences as well as how she wanted to feel, think and behave while guiding the interventions. In one of her reflections, the researcher observed how mentally and emotionally drained she felt after leading an intervention session and how longer sessions demanded greater focus. As such, the researcher ensured to implement strategies in her daily routines to be well rested, which included setting time aside for relaxation, getting enough sleep, and reading her journal entries. Doing so allowed the researcher to provide the level of attentiveness and flexibility needed to meet the student-athletes' needs (Natasi & Schensul, 2005). Lastly, it is noteworthy that brief notes were taken during interviews and intervention sessions to keep track of key topics that could be important to revisit and probes that could be used at opportune moments (Patton, 2002).

Post-intervention interview. One month following the completion of the intervention, a final interview was individually conducted in person in a private office on campus with each student-athlete. It too was facilitated based on a semi-structured interview guide (see Appendix G) and lasted between 45 and 60 minutes. This interview allowed the researcher to explore the participants' overall experiences during the research, perceptions of change in stress, burnout, well-being, and self-regulation, and main lessons learned. The student-athletes also discussed long-term goals and new perspectives regarding their sport participation, academia, social relationships, and career aspirations. During this final interview, self-report measures were again completed to assess perceived stress, well-being, and self-regulation capacity levels. Athlete

burnout levels were not assessed as the athletes were in their off-season and questions in the ABQ are relevant to the competitive season.

Data analysis

Quantitative analysis - Screening phase. In the screening phase of the research, statistical tests were performed using SPSS, version 18.0 to examine the 145 university student-athletes' levels of burnout and to identify if levels differed based on variables such as age, gender, year of sport participation, academic year, and academic program (see *Article 1*). The internal consistency scores of the three ABQ subscales (i.e., physical and emotional exhaustion, reduced accomplishment, and sport devaluation) were computed to verify their inter-item reliability. Specifically, the Cronbach's alpha test was run to evaluate the extent to which the subscales measured burnout consistently, with high values indicating adequate reliability (Myers & Hansen, 2002). Next, means and standard deviations were computed for each subscale to examine student-athletes' average burnout levels and to measure variability between each score and the mean (Myers & Hansen, 2002). In order to examine the relationships between the subscales, Pearson product-moment correlation coefficients were calculated. While results from correlational analyses could not infer causation, the strength and direction of correlations between subscales provided a greater understanding of the extent to which each of the burnout dimensions were related to one another (Myers & Hansen, 2002). In addition, a chi-square goodness-of-fit test was performed. As explained by Gravetter and Wallnau (2002), chi-square tests are used to examine population frequency distributions in order to "determine how well the obtained sample proportions fit the population proportions specified by the null hypothesis" (p.428). The chi-square test was thus used to determine if the hypothesized number of athletes experiencing a high level burnout was reflected within the student-athlete sample who completed

the ABQ. Lastly, a series of one-way between subject analysis of variance (ANOVA) tests and independent *t*-tests were computed to detect any significant differences in burnout levels. In order to determine if the ANOVA tests would be adequately powered to detect meaningful effects and would be inferentially meaningful, a power analysis for ANOVA tests was conducted (Kraemer & Blasey, 2015). T-tests were performed when examining differences between two treatment groups (e.g., gender), whereas ANOVA tests were computed when three or more treatment groups were involved (e.g., academic year) in order to identify the degree to which the scores from each group differed from one another. Finally, to determine if these ANOVA tests had sufficient power to detect meaningful effects, a post-hoc power analysis was conducted (Myers & Hansen, 2002).

Quantitative analysis - Intervention phase. Various statistical tests were also computed using the data collected from the eight student-athletes at four time points during the intervention phase (i.e., pre-intervention, mid-intervention, end of intervention, and post-intervention, see *Article 2*). Specifically, Pearson's correlation coefficients were calculated to examine the strength and nature of the relationships between the variables at all time points (Myers & Hansen, 2002). While levels of stress, well-being, and self-regulation capacity were measured at four time points, burnout was only assessed at three time points given that the student-athletes were no longer competing at the post-intervention stage and ABQ items were no longer relevant. In order to identify any significant changes in levels of stress, burnout, well-being and self-regulation capacity over the course of the intervention, repeated measures ANOVA tests were conducted. These findings served to complement those emerging from the qualitative data analysis.

Qualitative analysis. The qualitative data analysis involved several steps and procedures (Hsieh & Shannon, 2005), which were summarized as: (a) data transcription, (b) memo writing, (c) data coding, (d) multiple coder checks, (e) data recoding, (f) narrative construction, (g) model revision, and (h) model verification. A detailed description of these steps and procedures is provided below.

Data transcription. A total of 77 interviews and intervention sessions were audio-taped and transcribed verbatim by the researcher. The researcher aimed to transcribe the interviews and intervention sessions soon after she conducted them, however, given that eight intervention sessions were held on a bi-weekly basis and transcription was a lengthy process, there was often a delay between data intake and output. As an example, the researcher conducted the 4th intervention session with a student-athlete but had only transcribed this participant's 1st and 2nd intervention session at the time. This was not perceived as a limitation in the intervention process as the researcher took notes during the interviews and intervention sessions and kept a reflective logbook.

In order to maintain participant anonymity, all data that could identify participants were removed from the transcripts (e.g., name of hometown) and each participant was assigned an ID number (Dunning & Kresman, 2013). These ID numbers were used in the transcripts and in the articles in the Results section. Each athlete was identified alphabetically (A-H), and each interview and intervention session was identified numerically according to the chronological order in which it occurred (1-11). For example, data emerging from participant C's pre-intervention interview was coded as C1 whereas data from the second intervention session was coded as C3.

Memo writing. The researcher engaged in reflection and memo writing throughout the transcription and data analysis phases in order to stay at the forefront of the research process (Rubin & Rubin, 2011). Memo writing via the researcher's logbook, the notes taken during face-to-face interviews and intervention sessions, and the transcription process was a valuable means to keep track of evolving interpretations and insights that could be used to inform subsequent data collection and analysis. These entries took various forms, including (a) reformulated interview and intervention session probes, (b) anticipated topics for follow-up discussions, (c) initial codes emerging from the data to support theoretical constructs (i.e., RPM, CASBBM), (d) visual depictions of the emerging coding tree.

Data coding. The first step in coding the data was to break down each transcript into comprehensive segments of text, otherwise known as meaning units. Each meaning unit represented a participant's distinct thought or idea (Hsieh & Shannon, 2005). Meaning units were then coded based on their respective content. Similar coded meaning units were then categorized under different order themes that were (a) deductively identified based on the research objectives, the interview/intervention session guides, and/or the CASBBM and RPM (e.g., Coping, Preparation) or (b) inductively identified based on the student-athletes' shared experiences (e.g., Outcomes). In terms of depth, the themes spanned seven orders, which were represented in a visual coding tree. For instance, under the first-order theme "Outcomes", a second-order theme titled "Academic Performance" was created, followed by a third-order theme labeled "Desired Marks". With every additional order, themes became more specialized. Meaning units were first coded directly in the transcripts in Microsoft Word. However, once the initial coding was completed and the preliminary coding tree was developed, data were exported in Nvivo 10 software. Doing so allowed the researcher to verify all initial codes and further

reflect on whether each meaning unit had been adequately coded. Nvivo 10 provided the researcher with a tool to manage and interpret the large quantity of coded data.

Multiple coder checks. The researcher compared and contrasted the data and respective codes and themes throughout the coding process. In order to generate deeper reflection and check interpretations, she spoke with her supervisor on a regular basis. Furthermore, once all the data were coded, the coding was verified by two doctoral students who were familiar with both the CASBBM and RPM models, and independently coded a representative sample of meaning units using the coding tree. The participants were sent the same sample of 40 coded meaning units representing different themes and orders and were asked to categorize each meaning unit under the appropriate theme(s) based on the coding tree. Acceptable consistency was reached between the coding of the researcher and that of each student (83% and 87%, Lombard, Snyder-Duch, & Bracken, 2002). In order to examine discrepancies, the researcher followed up with the doctoral students by sending them the discrepant coded meaning units in a Microsoft Word document. The students were asked to send their feedback regarding discrepancies and provide a rationale for their viewpoints. After several exchanges between the researcher and the doctoral students, they reached a consensus. The researcher then reviewed the revised coded meaning units with her supervisor. As an extra verification step, each student-athletes' coded transcripts were emailed to them. Two of them responded and none proposed changes to the codes and themes. However, a few minor changes to the content of the meaning units were suggested thus these changes were integrated in the database.

Data recoding. The multiple coder checks were key as they helped the researcher to engage in deliberate reflection and verify her interpretations. As a final coding step, the researcher went through the entire database one last time, keeping in mind the results of the

multiple coder checks. She reviewed all of the coded meaning units and the themes under which they were categorized. She made final changes and ensured the coding was consistent throughout the database. This led to final changes to the coding tree, which was printed, along with the meaning units categorized under each theme, to help guide the next step in the analysis.

Narrative construction. The next step in the analysis involved constructing narratives in order to capture the student-athletes' experiences throughout the intervention process (see ***Article 3***). Having facilitated the interviews and intervention sessions and carefully transcribed and coded the data, the lead researcher felt fully immersed in the student-athletes' process. In order to accurately and authentically depict their experiences, the researcher studied the coding tree and read through the meaning units categorized under each theme, noting each participant's voice. She also read the chronologically ordered transcripts for each participant. As Reissman (2002) explained "close and repeated listening, coupled with methodological transcribing often leads to insights that in turn shape how we choose to represent an interview narrative in our text" (p.253). Given the breadth and the depth of the narratives the researcher wanted to construct, she chose to focus on four out of the eight participants. She selected a male hockey player, a male swimmer, a female basketball player, and a female fencer because they were different from one another and represented different sports and both genders. From this point, meaning units representing key themes from these participants' transcripts were chronologically regrouped in one Microsoft Word document per participant. With the goal of portraying these student-athletes' lived experiences throughout the intervention process, the data were transformed into a coherent narrative using the participants' words as much as possible (Smith & Sparkes, 2009). Piecing this diachronic data together, the researcher played the role of storyteller and used the

first-person voice to transport readers through each student-athletes' unique pre, early, mid, late, and post-intervention experience in an authentic manner (Smith & Sparkes, 2009).

Model revision. In the last stages of the qualitative data analysis, the researcher engaged in a broader level of analysis to compare and contrast the final coding tree with the components of the CASBBM in order to determine the comprehensiveness and applicability of the CASBBM to guide burnout interventions (see **Article 4**). Several new inductively-derived themes (e.g., self-regulation strategies, positive experiences) that were evident in the coding tree were not reflected in the original CASBBM. This provided the rationale to adapt the CASBBM and create a version of the model that would account for all relevant themes and changes emerging from the multiple interventions. This level of analysis was exhaustive and involved multiple lengthy discussions between the researcher and her supervisor spanning a period of four months. The researcher and supervisor carefully studied each component of the original CASBBM and the different order themes in the coding tree, attempting to authentically integrate and represent both in the adapted model. All in all, they crafted three different versions of the adapted model before they finalized it.

Model verification. The last step consisted of getting the adapted model evaluated by a panel of external reviewers, which included an expert scholar in the area of sport burnout, one of the doctoral students who participated in the multiple coder check and had extensive knowledge in model development, and the university student-athlete who took part in the pilot study and had provided valuable feedback. The panel members were sent via email the original CASBBM and the revised model accompanied with a full description of each component and supportive data (i.e., see Results section of **Article 4**). They were asked to review the adapted model and content

and to provide feedback regarding its breadth, depth, and usefulness to guide burnout interventions using the track change option in Microsoft Word. Specifically, they were asked:

- (a) Is the model easy to understand and interpret (i.e., different components, relationships, definitions, examples)?
- (b) Is the model presented and discussed in a way that researchers and practitioners will be able to use it to guide future research and practice?
- (c) Could coaches and athletes use this to help prevent or alleviate stress and burnout?
- (d) Is there anything that should be added, modified, or deleted based on your knowledge and experience of stress and burnout or interventions (keeping in mind that the adapted model has to be a reflection of the research objectives and data analysis)?

The feedback from the three panel members were carefully scrutinized by the researcher and her supervisor, and led to model revisions. For example, definitions of each model component were more clearly articulated. Examples to demonstrate relationships between components were added. In addition, core and peripheral components were delineated in the model, and the arrows between components were highlighted. The revised model was sent back to the panel members with highlighted changes and explanatory notes addressing their questions and suggestions. They were once more invited to provide feedback regarding these changes using the track change option in Microsoft Word. All three panel members were satisfied with the revisions made to the model and the content describing and supporting the model. Only a few minor changes were suggested to clarify a few constructs in the description of the model and these changes made accordingly (see *Article 4*).

Part III

Results

The following section includes the results of this research, which were articulated in four distinct articles. Article 1 presents the levels of burnout of a sample of university student-athletes and highlights the influence of demographic factors on burnout. Article 2 shows how eight student-athletes' levels of stress, burnout, well-being and self-regulation capacity changed as a result of participating in a self-regulation intervention. Using a case study approach, Article 3 chronologically depicts, through narratives, the unique experiences of four of the student-athletes who took part in the intervention process. Finally, Article 4 presents the integration and adaptation of the CASBBM to optimize its use as an intervention framework to prevent and alleviate stress and burnout. The articles are presented in the format required by the scientific journals in which they were published (Articles 1 and 2) or to which they will be submitted for publication (Articles 3 and 4).

Article 1

Exploring Levels of Student-Athlete Burnout at Two Canadian Universities

Nicole Dubuc-Charbonneau, Natalie Durand-Bush, & Tanya Forneris

University of Ottawa

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Exploring levels of student-athlete burnout at two Canadian universities

Nicole Dubuc-Charbonneau, Natalie Durand-Bush, and Tanya Forneris
University of Ottawa

Abstract

The purpose of the current study was to examine the levels of burnout among student-athletes at two Canadian universities and to investigate whether there were significant differences related to gender, sport, year of university sport participation, academic year, and academic program. Burnout was measured by administering Raedeke and Smith's (2001) Athlete Burnout Questionnaire to 145 student-athletes from various sports. Overall, 1.4% of the student-athletes had elevated burnout scores on all three subscales, and 17% scored high on two of the three subscales. No significant differences emerged with regards to year of varsity sport participation, academic year, or program. However, women had significantly higher levels of emotional and physical exhaustion than men. Significant differences also emerged in relation to levels of emotional and physical exhaustion, and of sport devaluation, when comparing various sports.

Résumé

Le but de cette étude était d'évaluer le niveau d'épuisement d'étudiants athlètes fréquentant deux universités canadiennes et de déterminer s'il y avait des différences significatives liées au sexe, au sport, au nombre d'années de participation au sport universitaire, ainsi qu'à l'année universitaire et au programme d'étude. L'épuisement a été mesuré en distribuant le « Athlete Burnout Questionnaire » (Raedeke & Smith, 2001) à 145 étudiants athlètes universitaires de différentes disciplines sportives. En somme, 1,4 % des participants ont affiché des scores élevés sur chacune des trois sous-échelles et 17 % ont fait de même sur deux d'entre elles. Aucune différence marquée n'a été identifiée quant au nombre d'années de participation au sport universitaire, ni à l'année universitaire ou au type de programme d'étude. Cependant, les femmes ont affiché un niveau d'épuisement émotif et physique significativement plus

élevé que celui des hommes. En outre, on a noté des différences marquées en comparant les sports entre eux en ce qui a trait au niveau d'épuisement émotif et physique et au niveau de dévalorisation des disciplines.

Introduction

University sports offer an opportunity for athletes to remain involved in competitive sport while pursuing a post-secondary education. In fact, for many athletes, participating in university sports will represent the peak of their competitive careers. Playing on a college or university team can provide numerous health and social benefits (Miller & Kerr, 2002). A survey comparing over 2000 athletes from various sports with non-athletes revealed that athletes have higher levels of psychological well-being than non-athletes (Aries, McCarthy, Salovey, & Banaji, 2004). Despite these advantages, factors such as pressure to succeed, extensive travelling, and intense training schedules can cause stress and overshadow the positive outcomes associated with their sport participation (Gould & Whitley, 2009). In addition to sport-related stressors, student-athletes face various academic and social demands (e.g., assignments, examinations, development of friendships) and must meet the constant challenge of maintaining a desired level of performance in both sport and academic contexts (Gustafsson, Hassmén, Kenttä, & Johansson, 2008; Miller & Kerr, 2002). It is suggested that the physiological, emotional, and psychological stress that can result from an athlete's inability to cope with demands can contribute to the development of burnout (Gustafsson, Kenttä, & Hassmén, 2011; Raedeke & Smith, 2004).

Conceptualizations of Burnout in Sport

Research on burnout stems from the occupational literature, and although Freudenberger (1974) was the first to report that workers could "burn out," Maslach and Jackson (1981) offered the first and now most common conceptualization of workplace burnout. Their research indicates that burnout has three distinct components: (a) emotional exhaustion, (b) depersonalization, and (c) a sense of reduced accomplishment. In the context of sport, Raedeke's (1997) athlete-specific definition of burnout is the one that is most consistent with Maslach and Jackson's (1981) original workplace conceptualization. According to Raedeke, athlete burnout can be defined as a condition characterized by emotional and physical exhaustion, sport devaluation, and reduced personal accomplishment. The constructs within this definition have since been utilized to develop the Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001), which is currently the most prominently employed tool to measure athlete burnout. The ABQ was selected to assess burnout in the current study.

Smith's (1986) sport-specific, stress-based burnout model is also of relevance in this discussion of conceptualizations of burnout. Congruent with the work of Lazarus (1966, 1982), Smith postulated that stress is the result of athletes' perceived imbalance between the demands they face and the resources and abilities they possess to meet these demands. Furthermore, stress can lead to many negative responses, such as tension, depression, and fatigue (Smith, 1986). If one is unable to manage chronic negative responses from stress, burnout can develop (Smith, 1986). Smith's sport-

specific model was the guiding conceptual framework in the present study.

Burnout in sport has also been conceptualized from physiological (Kenttä & Hassmén, 1998; Silva, 1990), organizational (Coakley, 1992; Coakley, 2009), and motivational perspectives (Lemyre, Treasure, & Roberts, 2006; Perreault, Gaudreau, Lapointe, & Lacroix, 2007; Raedeke, 1997; Schmidt & Stein, 1991). While these various conceptualizations have led researchers to postulate different factors that contribute to the development of burnout, commonalities regarding associated symptoms and consequences of burnout have emerged. Specifically, athlete burnout is often linked to increases in fatigue (Cresswell & Eklund, 2006, 2007), lethargy (Cresswell & Eklund, 2006; Goodger, Wolfenden, & Lavalley, 2007), illness (Cresswell & Eklund, 2006; Gould, Tuffey, Udry, & Loehr, 1996, 1997), injury (Cresswell & Eklund 2005, 2006), amotivation (Cresswell & Eklund, 2005, 2006; Gould et al., 1996; Lemyre et al., 2006), loss of focus (Cresswell & Eklund, 2006; Goodger et al., 2007; Gould et al., 1996), and self-doubt (Cresswell & Eklund, 2006; Lemyre, Hall, & Roberts, 2008). Emotional responses such as frustration (Cresswell & Eklund, 2006; Goodger et al., 2007; Gould et al., 1996), anger (Coakley, 1992; Smith, 1986), feelings of incompetence (Cresswell & Eklund, 2007; Goodger et al., 2007), and mood disturbances (Cresswell & Eklund, 2006; Goodger et al., 2007; Gustafsson et al., 2008) have also emerged as consequences of burnout.

Prevalence of Burnout in Sport

Although researchers have uncovered various precursors and consequences of burnout, the prevalence of athlete burnout is not as clear. Silva (1990), for example, found that over 60% of elite athletes in his study experienced “staleness,” which, according to overtraining syndrome researchers, can be considered a precursor of burnout (Morgan, Brown, Raglin, O’Conner, & Ellickson, 1987). Silva (1990) also estimated that burnout was experienced by 47% of the 68 National Collegiate Athletic Association (NCAA) athletes in his sample. However, these results have to be interpreted with caution, given the lack of validity and reliability of the training stress syndrome model guiding the study and the tool used to measure burnout. Nearly two decades later, Hodge, Lonsdale, and Ng (2008) examined the levels of burnout and motivation (i.e., autonomy, competence, relatedness) of elite male rugby players. Participants were categorized as either low or high burnout, based on their ABQ scores (Raedeke & Smith, 2001). While the group with high burnout scores reported significantly lower autonomy and competence scores than the group with low levels of burnout, relatedness scores did not differ across groups. Overall, Hodge and colleagues found that only six of the 133 rugby players (4%) had high levels of burnout. Interestingly, the cut-off scores for athletes in the high burnout group were 3.0 on the emotional and physical exhaustion and sport devaluation subscales and 2.7 on the reduced accomplishment subscale. These values were determined using Raedeke’s (1997) cluster analysis data, the Maslach Burnout Inventory–General Survey (MBI-GS) cut-off values for high employee burnout (Maslach, Jackson, & Leiter, 1996), and tentative classifications offered by Eklund and Cresswell (2007). The lower cut-off criterion for the reduced personal accomplishment subscale (2.7) was determined

based on the cut-off criteria from the MBI-GS (Maslach et al., 1996) and the finding that many participants within the high burnout group in Raedeke's (1997) cluster analysis had reduced accomplishment scores lower than three (Hodge et al., 2008).

Gustafsson, Kenttä, Hassmén, and Lundqvist (2007) examined the prevalence of burnout among 980 adolescent Swedish athletes ranging in age from 16 to 21 years. Using the Eades Athletic Burnout Inventory (Eades, 1991), Gustafsson and colleagues reported that between 1 and 9% of female athletes and 1 and 6% of male athletes indicated high levels of burnout. Specifically, women reported higher levels of negative self-concept of athletic ability as well as emotional and physical exhaustion than their male counterparts, whereas men had slightly higher levels of sport devaluation. Another emerging trend was that the women participating in team sports had lower burnout scores than those participating in individual sports. On the other hand, men competing in team sports had higher burnout scores than those partaking in individual sports (Gustafsson et al., 2007). While a strength of this study was the large sample of athletes surveyed, a limitation was the use of an inventory with "psychometric shortcomings" (Gustafsson et al., 2007, p. 32) that subsequently has rarely been used in the study of burnout in sport.

Supporting these findings but using a different measure, Cremades and colleagues (2008) revealed that among NCAA college athletes, female team-sport athletes reported a higher sense of accomplishment than did female athletes in individual sports, although no team versus individual sport differences were found among male athletes. Furthermore, female athletes had higher levels of emotional and physical exhaustion as well as higher levels of sport devaluation than male athletes. In a more recent study examining gender differences in burnout among individual sport athletes from various national Iranian teams, it was reported that female athletes had significantly higher burnout levels than male athletes on all three of the ABQ subscales (Heidari, 2013). A South African study examining burnout and sport experience among college rugby players highlighted that when comparing a novice group (first season), a somewhat experienced group (one to two years), and an experienced group (minimum of three years), the most experienced athletes had significantly higher sport devaluation scores than the less experienced and novice players. The novice group and the somewhat experienced group did not show differences in burnout scores (Grobbelarr, Malan, Steyn, & Ellis, 2010).

While the aforementioned studies provide some valuable information, current levels of burnout among Canadian athletes have yet to be assessed, particularly by means of a valid and reliable tool like the ABQ (Raedeke & Smith, 2001). Another limitation in the literature is that most existing findings have not been replicated or supported by subsequent studies. Hence, more research employing validated measures with additional samples of athletes is warranted.

Stress and Burnout in Academic Settings

Stress and burnout occur not only in sport but also in academic settings. Interestingly, academic settings in which athletes play the dual role of student-athlete, and in which demands are elevated, have not been the focus of various burnout studies. It is logical to examine student-athletes through the lens of the sport and academic burnout literature, given this double role they play and the different types of stressors they face. The literature pertaining to stress in academia suggests that university students in general experience high levels of stress. For example, a national survey conducted almost a decade ago among 6,282 Canadian undergraduate students revealed that 29% of them experienced elevated psychological distress (e.g., chronic stress, lack of sleep, loss of confidence, depression, feelings of incompetence) (Adlaf, Demers, & Gliksman, 2005). A similar 1998 survey had indicated that distress declined as students progressed through their program of study (Adlaf, Gliksman, Demers, & Newton-Taylor, 2001). However, this finding was not replicated with the 2004 student population (Adlaf et al., 2005). This decline in stress was also found by Misra and McKean (2000) as well as Rawson, Bloomer, and Kendall (2001), who reported that sophomore students had higher mean levels of stress than juniors within their college student population.

More recently, 53% of students from six Ontario post-secondary institutions reported feeling overwhelmed with anxiety, and 36% stated that feelings of depression hindered their day-to-day functioning (American College Health Association, 2009). This growing concern was underscored in a recent report commissioned by the Canadian Association of College and University Student Services, revealing that “mental health issues are identified by students as having the greatest impact on their academic success,” and that student mental health should become a top priority for Canadian colleges and universities (MacKean, 2011, p. 6). Still, it is unclear whether or not Canadian university student-athletes, a subset of this population, are more or less at risk of anxiety and reduced health. In another study conducted with Canadian undergraduate students, Campbell, Svenson, and Jarvis (1992) found that lack of time and of self-discipline were two main contributors to students’ perceived elevated stress. Of particular interest to the current investigation, Kimball and Freysinger (2003) reported that lack of autonomy and feelings of isolation were listed as reasons for which undergraduate student-athletes were no longer finding sports to be a source of enjoyment or a vehicle for coping with negative outcomes associated with stress. Instead, they found sports to contribute to their overall levels of stress.

With regards to the literature on burnout in academia, results from a recent study by Salanova, Schaufeli, Martinez, and Bresó (2010) revealed that university students who were burned out perceived a significantly higher number of obstacles (e.g., overload, lack of academic support, financial demands) and a lower number of resources (e.g., social support, scholarships, tutoring, access to student services). Salmela-Aro, Noona, Pietikäinen, and Jokela (2008) examined burnout correlates within high school settings, which, based on the aforementioned findings, may also be relevant in university settings. These authors reported that negative school climate was positively correlated with burnout, while support from the school, as well as motivation

and encouragement from teachers, were negatively correlated with burnout. Also, when specifically exploring burnout among adolescent student-athletes, Dubuc, Schinke, Eys, Battochio, and Zaichkowsky (2010) found that the negative repercussions associated with elevated stress and burnout can hinder the quality of student-athletes' athletic experiences as well as their academic and personal lives.

Additional burnout studies conducted in the context of academia have focused on college athletes (Lai & Wiggins, 2003; Lemyre et al., 2006; Wiggins, Lai, & Deiters, 2005). For example, using the Burnout Inventory for Athletes (VanYperen, 1997), a unidimensional burnout measure, Lai and Wiggins (2003) found that despite lower overall burnout scores and a lack of significant gender differences, burnout levels of NCAA soccer players increased throughout the season. Using the same burnout measure, Wiggins et al. (2005) found that female college soccer and hockey players who had high trait anxiety had significantly higher overall burnout scores than those with lower trait anxiety. Lastly, Lemyre et al. (2006) found that college-level swimmers with negative motivational trends scored significantly higher on all three burnout dimensions of the ABQ (Raedeke & Smith, 2001) than did those with positive motivational trends (self-determined motivation). In addition, Lemyre et al.'s study (2006) revealed that athletes with higher variability in negative affect were at greater risk of burnout. While important relationships were highlighted within these studies, overall levels of burnout and links between burnout and other variables, such as year of study or academic program, were not examined. Furthermore, the samples within the studies conducted by Lai and Wiggins (2003), Lemyre et al. (2006), and Wiggins and colleagues (2005) were relatively small ($N < 90$) and were limited to American NCAA athletes.

Overall, the findings presented thus far help us understand that stress and burnout can occur in sport and academia. While there seems to be considerable empirical evidence regarding factors that contribute to and result from stress and burnout in these settings, there is still a lack of data pertaining to levels of burnout, particularly for a unique subset of individuals withstanding numerous demands - that is, student-athletes. This provided the rationale for conducting the current study, which is part of a larger study assessing the impact of an intervention conducted with university student-athletes experiencing burnout.

Purpose of the Study and Hypotheses

The purpose of the study was to answer the following research questions and test the following hypotheses:

- a. What is the level of burnout among a sample of university student-athletes at two Canadian universities? We hypothesized that moderate levels of burnout would be reported by many participants, with less than 10% reporting high levels of burnout (Gustafsson et al., 2007).
- b. Are there significant differences in burnout levels as they relate to the following factors?
 - i. Gender: We hypothesized that female student-athletes would report higher levels of burnout than their male counterparts (Cremades et al.,

- 2008; Heidari, 2013).
- ii. Sport: Given that demands and social support can vary across sports, we hypothesized that there would be significant differences in levels of burnout between sports (Gustafsson et al., 2008).
 - iii. Year of university sport participation: We hypothesized that athletes with three or more years of sport experience would have the highest levels of burnout (Grobbelarr et al., 2010).
 - iv. Academic year: We hypothesized that those in the first year of their academic program would report the highest levels of burnout (Adlaf et al., 2001; Misra & McKean, 2000; Rawson, Bloomer, & Kendall, 2001).
 - v. Academic program: Although no research has addressed burnout in relation to university student-athletes' academic programs, we hypothesized that students pursuing programs related to biophysical sciences, which typically involve more demands due to laboratories, would experience higher levels of burnout than students enrolled in social sciences and humanities programs.

Methods

Participants

The participants were student-athletes ($N = 145$; female = 62, male = 83; age 17–27, $M = 20.4$ years; $SD = 2.07$) competing on recognized Canadian Interuniversity Sport teams from two different Ontario universities (University 1, $n = 83$; University 2, $n = 62$). The sample included undergraduates from first ($n = 55$), second ($n = 35$), third ($n = 26$), and fourth years ($n = 24$), as well as Masters ($n = 2$) and PhD ($n = 3$) student-athletes. With regards to the number of years of university sport participation, the student-athletes ranged from rookies to veterans. Specifically, they were in their first ($n = 63$), second ($n = 35$), third ($n = 26$), fourth ($n = 18$), or fifth year ($n = 3$) of university sport eligibility. Given that this study was part of a larger research project assessing the impact of a season-long intervention with selected athletes experiencing burnout, the sample was limited to athletes whose sport season lasted a minimum of five months. Specifically, the athletes participated in university-level hockey ($n = 78$), basketball ($n = 36$), swimming ($n = 11$), volleyball ($n = 10$), or fencing ($n = 10$). The participants' program of study was divided into five categories: (a) math/science ($n = 16$), (b) health sciences ($n = 26$), (c) commerce ($n = 27$), (d) communication ($n = 14$), and (e) social studies ($n = 59$). The first two were related to biophysical sciences, while the latter three were considered social sciences and humanities programs.

Instrument

The athletes' level of burnout was assessed using the ABQ (Raedeke & Smith, 2001), a 15-item self-report instrument comprising three five-item subscales (i.e., emotional and physical exhaustion, reduced personal accomplishment, and sport devaluation). The items stemmed from the question "How often do you feel this way?" and were scored on a five-point Likert scale ranging from one (almost never) to five

(almost always). The ABQ was chosen as a burnout measure due to its acceptable psychometric properties and its predominant use to assess burnout in sport (Cresswell & Eklund, 2007; Dubuc et al., 2010; Gustafsson et al., 2008; Hodge et al., 2008; Lemyre et al., 2006). Raedeke and Smith (2001) reported that the internal consistency of the subscales exceeds .70 and test-retest reliability coefficients range from .86 to .92 on the three subscales.

Raedeke and Smith (2001) did not provide clear cut-off scores for the ABQ. However, a cluster analysis conducted with a sample of swimmers (Raedeke, 1997), and scores from a comparative occupational questionnaire (MBI-GS; Maslach et al., 1996), suggest that individuals considered to have high levels of burnout typically have scores near or above the mean score of three on all three subscales. While Eklund and Cresswell (2007) suggested that similar cut-off scores be used to identify high levels of sport burnout with the ABQ, Hodge and colleagues (2008) stated that athletes in Raedeke's (1997) study having high overall burnout scores had reduced sense of accomplishment subscores lower than three; hence, Hodge et al. used a lower reduced accomplishment cut-off score of 2.7 in their study. Nevertheless, in the current study, we attempted to remain cautious about categorizing athletes into a high burnout group, and therefore used ABQ scores of three or higher on all three subscales as the cut-off to identify high burnout levels. Previous studies have proposed that burnout symptoms may arise sequentially. For example, some researchers suggested that exhaustion may lead to reduced personal accomplishment, which can, over time, cause sport devaluation (Cresswell & Eklund, 2006; Goodger et al., 2007; Gustafsson et al., 2008). Hence, a mean score of three or higher on two of the ABQ subscales was used in the current study to identify moderate levels of burnout among student-athletes.

Procedures

The primary researcher contacted coaches from eligible men's and women's teams at both universities prior to the season in order to seek their teams' participation in the study. Approximately one month following the start of the academic year, the researcher met with teams who agreed to participate, to allow the students to become fully immersed in the semester and their sport season. During each 20-minute meeting, the participants were first given a verbal explanation of the purpose of the study and the requirements to partake in it. Next, they signed the consent form approved by the Ethics Boards from both universities. Finally, they completed the ABQ and a short demographic questionnaire and submitted these directly to the researcher.

Data Analysis

To test the proposed hypotheses, several statistical analyses were conducted. First, internal consistency estimates were obtained to verify the reliability of the subscales. Then, mean burnout scores and standard deviations were computed for each burnout subscale to determine the student-athletes' burnout levels. Correlations between each of these subscales were then examined to assess how the ABQ's distinct subscales relate to one another. Next, a chi-square goodness-of-fit test was performed to test whether the hypothesized number of athletes experiencing a high level of

burnout was reflected within the current sample. Lastly, a series of one-way between-subject ANOVAs and independent t-tests were computed to identify and further examine any significant differences in burnout levels. To determine whether these analyses had sufficient power to detect meaningful effects, a post hoc power analysis was conducted.

Results

The internal consistency estimates for the ABQ were excellent, exceeding Nunally and Bernstein's (1994) recommended criterion of 0.70. The alpha value for the global scales was 0.86, while it was 0.82, 0.81, and 0.87 for the subscales of emotional and physical exhaustion, reduced accomplishment, and devaluation, respectively. Average burnout scores out of a possible score of 5 were computed for each of the ABQ's subscales. The mean scores for emotional and physical exhaustion, reduced personal accomplishment, and sport devaluation were 2.77 ($SD = .75$), 2.28 ($SD = .71$), and 1.90 ($SD = .80$), respectively. Overall, these mean scores assessed during the earlier part of the student-athletes' season can be considered low to moderate; they reflect values between "rarely" and "sometimes." When comparing them with early-season burnout scores from Cresswell and Eklund's (2006) study of professional rugby players competing over a similar 30-week season, the university student-athletes' scores were slightly higher for each burnout dimension. In addition, 1.4% of the student-athletes ($n = 2$) scored 3 or higher on all three of the burnout subscales and were thus experiencing burnout symptoms anywhere from "sometimes" to "almost all the time." A chi-square test of goodness-of-fit was performed using unequal ratios to reflect the aforementioned hypothesis. Significant results $\chi^2(2, N = 145) = 14.04, p = 0.001$ suggest that participants fell within the expected categories. As such, these findings support the hypothesis that less than 10% of the student-athletes would experience high levels of burnout, as defined by Raedeke (1997) and Eklund and Cresswell (2007).

While few student-athletes scored high on all three burnout dimensions, 18% ($n = 26$) of them scored 3 or higher on two of the three burnout subscales, which suggests that they may have been experiencing moderate levels of burnout or early phases of burnout. More specifically, 17 participants scored 3 or higher on reduced accomplishment and emotional and physical exhaustion, seven had scores of 3 or higher on the devaluation and emotional and physical exhaustion subscales, and three participants scored 3 or higher on the devaluation and reduced accomplishment subscales. Interestingly, when examining each burnout dimension individually for scores of 3 or higher, results revealed that nearly 50% of the student-athletes ($n = 71$) reported high levels of emotional and physical exhaustion, 18% ($n = 26$) had high levels of reduced accomplishment, and 11% ($n = 16$) reported elevated devaluation scores.

Correlational statistics show that all three burnout subscales scores were significantly related, as indicated in Table 1, which supports previous findings put forth by Cresswell and Eklund (2005) and Lemyre et al. (2008).

Table 1
Correlations between ABQ subscales

Subscale	1	2	3
1. Exhaustion	1.00	.28**	.29**
2. Reduced Sense of Accomplishment	.28**	1.00	.46**
3. Sport Devaluation	.29**	.46**	1.00

Note: Significant at $p < .01$ (two-tailed)

A series of one-way between-subject ANOVAs were conducted to examine the effects of the various independent variables (i.e., gender, sport, year of university sport participation, academic year, and academic program) on burnout levels. There were no significant effects at the $p < .05$ level for academic year on emotional and physical exhaustion, $F(5, 139) = 1.60, p = 0.16$, reduced sense of accomplishment, $F(5, 139) = 0.71, p = 0.62$, and sport devaluation, $F(5, 139) = 0.64, p = 0.67$. Similarly, there were no significant effects for academic program on emotional and physical exhaustion, $F(4, 137) = 1.22, p = 0.31$, reduced sense of accomplishment, $F(4, 137) = 1.36, p = 0.25$, and sport devaluation, $F(4, 137) = 0.41, p = 0.80$. Lastly, no significant differences emerged with regards to years of university sport participation and level of emotional and physical exhaustion, $F(4, 140) = 1.20, p = 0.31$, reduced sense of accomplishment, $F(4, 140) = 1.09, p = 0.37$, and sport devaluation, $F(4, 140) = 0.27, p = 0.90$. Results therefore do not support our hypotheses that there would be significant differences in the burnout levels of student-athletes based on their academic year, academic program, and year of university sport participation.

However, significant differences pertaining to gender did emerge. Specifically, independent t-tests revealed a significant difference between the scores of the male ($M = 2.59, SD = 0.75$) and female student-athletes ($M = 2.91, SD = 0.75$), $t(143) = 2.49, p = 0.01, d = -0.43$, on the emotional and physical exhaustion subscale. The latter value represents a small to medium effect size, based on Cohen's recommended values (1988). A post hoc power analysis computed using an $\alpha = 0.05$ indicated an observed power of 0.799, suggesting that there was approximately an 80% chance of detecting the effect. There were no significant differences in the male and female student-athletes' reduced sense of accomplishment scores [male ($M = 2.20, SD = 0.67$), female ($M = 2.33, SD = 0.73$), $t(143) = 1.10, p = 0.27$], and sport devaluation scores [male ($M = 1.90, SD = 0.79$), female ($M = 1.91, SD = 0.82$), $t(143) = 0.10, p = 0.92$]. This provides partial support to the gender-related hypothesis.

Significant differences also emerged when examining the effects of sport on all three burnout subscales, which supports our hypothesis. Specifically, results revealed significant effects of sport on emotional and physical exhaustion, $F(4, 140) = 6.17, p < 0.001, \eta^2 = 0.150$, reduced sense of accomplishment $F(4, 140) = 3.53, p = 0.009, \eta^2 =$

0.092, and sport devaluation scores, $F(4, 140) = 3.19, p = 0.015, \eta^2 = 0.083$. The power of the main effects was 0.311 for emotional and physical exhaustion, 0.170 for reduced sense of accomplishment, and 0.160 for sport devaluation. Post hoc analyses using the Tukey post hoc criterion for significance indicated that average emotional and physical exhaustion scores were significantly lower for hockey players ($M = 2.65, SD = 0.70$) and for fencers ($M = 2.08, SD = 0.81$) compared to basketball players ($M = 3.04, SD = 0.69$) and swimmers ($M = 3.36, SD = 0.77$). It was also found that hockey ($M = 1.90, SD = 0.82$) and volleyball ($M = 1.40, SD = 0.52$) players had significantly lower levels of sport devaluation than fencers ($M = 2.62, SD = 0.80$). No significant differences emerged in the post hoc analyses when comparing levels of reduced accomplishment across sports.

Discussion

The purpose of this study was to examine burnout levels among a sample of student-athletes from two Canadian universities. Overall, results revealed that few of the participants were experiencing high levels of burnout at the time the data were collected. In fact, athlete burnout characterized by high levels of emotional and physical exhaustion, a reduced sense of accomplishment, and sport devaluation (Raedeke, 1997) was experienced by less than 2% of the student-athletes, which is consistent with previous findings (Gustafsson et al., 2007). However, the fact that several student-athletes scored greater than 3 out of 5 on two of the three burnout subscales should be cause for concern, given that data were collected early in the academic year and sport season, at which point demands were not likely at their peak. Researchers suggest that emotional and physical exhaustion and a reduced sense of accomplishment are the first two symptoms to emerge in the development of burnout (Cresswell & Eklund, 2006; Kenttä & Hassmén, 1998). As such, higher mean scores on these two subscales by close to one-fifth of the participants in the current study could potentially indicate that they were experiencing an early stage of burnout. Given the negative consequences associated with burnout including illness (Cresswell & Eklund, 2006; Gould et al., 1996, 1997), injury (Cresswell & Eklund 2005, 2006) amotivation (Cresswell & Eklund, 2005, 2006; Gould et al., 1996; Lemyre et al., 2006), mood disturbances (Cresswell & Eklund, 2006; Gustafsson et al., 2008), and potential withdrawal from sport (Smith, 1986) it would be important to continue investigating burnout levels within this population to determine whether or not the prevalence remains the same throughout student-athletes' academic year and the competitive season. Furthermore, given the mental health crisis across university campuses reported by the Canadian Association of College and University Student Services (MacKean, 2011) and the American College Health Association (2009), researchers should correlate student-athletes' levels of burnout with other health-related variables to determine whether those with moderate to high levels of burnout experience additional mental health issues. When one takes a closer look at the effects of specific demographic variables on burnout, the lack of statistical significance associated with the type of academic program suggests that the academic demands from the student-athletes' different programs did not influence their susceptibility to burnout. Whether

they were enrolled in a biophysical sciences program or one pertaining to social sciences and humanities, the participants' levels of emotional and physical exhaustion, reduced sense of accomplishment, and sport devaluation did not significantly vary. With regards to academic year of study, there were no significant differences either; thus, our hypothesis was not supported. Results appear to support one study with Canadian undergraduate students showing that psychological distress a broad construct encompassing many symptoms linked to burnout, such as chronic stress, worry, lack of enjoyment, loss of confidence, and a feeling of incompetence did not vary based on students' academic year (Adlaf et al., 2005). The lack of a significant relationship between burnout and both academic program and year of study may be linked to the finding that some student-athletes with increased academic workloads have developed coping skills to manage their demands (Palmer & Roger, 2009). Another explanation may be that sport acts as a buffer for student-athletes, helping them to cope with the academic stress they face (Kimball & Freysinger, 2003).

While it was found in past research that rookies and veteran players in their fourth or fifth year of university sport participation had higher incidences of burnout (Grobbelarr et al., 2010), this finding did not emerge in the current study. It is noteworthy that while 63 student-athletes in the current sample were first-year participants, only 18 were in the fourth year of sport participation. This skewness in the sample could be coincidental or could be due to other factors (e.g., sport or academic-related attrition); thus, more research is warranted to further examine this relationship. Overall, the lack of significant differences suggests that new or experienced student-athletes may develop burnout, which is an important finding for coaches and university professors to consider when helping student-athletes to manage demands and develop adequate resources and coping skills.

It is noteworthy that gender and sport significantly impacted burnout scores in this study. The higher level of emotional and physical exhaustion reported by the female student-athletes compared to their male counterparts was also found by Cremades and colleagues (2008). Although more research is warranted to replicate this finding, it is relevant to encourage leaders in sport and academia to provide resources, training, and recovery programs that are tailored for women and monitored, to reduce female student-athletes' risk of emotional and physical exhaustion and possible subsequent burnout.

With regards to the various sports, significantly higher levels of emotional and physical exhaustion were found among swimmers and basketball players in the current study, and higher levels of sport devaluation were found among fencers, which does support our hypothesis. We had hypothesized that there would be significant differences between burnout levels across sports, and the results suggest that certain dimensions of burnout may be more pronounced within particular sport environments. Interestingly, Lemyre and colleagues (2006) also reported that university swimmers had high levels of emotional and physical exhaustion, so it may be valuable for coaches to pay particular attention to athletes' emotions and levels of energy in this sport. Given the strong correlation between the burnout subscales, the fencers' high levels of sport devaluation is of interest, especially given that they had

relatively low to average scores for emotional and physical exhaustion and reduced sense of accomplishment. This could mean that while the fencers may have felt that they had emotional and physical energy to meet their sport demands and maintain performance levels, they cared much less about their participation within the sport. There is a lack of research regarding the impact of different sports and associated demands and resources on burnout; thus, these results must be interpreted with caution, and additional studies are warranted.

While this study has generated findings that can inform future research and applied practice, it is important to recognize that it is not without shortcomings. First, as previously stated, because this study was part of a larger research project, burnout scores could not be collected multiple times, which limits the possibility of examining longitudinal trends. Also, having to restrict eligibility to those student-athletes participating in sports with longer seasons, in addition to having to obtain consent from individual coaches, restricted the number of participants and sports included in the study. This may also have led to a skewed representation of certain sports - for example, hockey, from which participants represented over one-third of the overall sample. In addition, given the smaller number of accessible graduate students, the number of student-athletes competing in their fifth athletic season or who were studying at the Master's or PhD level was limited, which has led to an underrepresentation of these groups within the sample. Furthermore, data were collected from two Canadian universities in the same area, which limits geographical representation. While the sample included more participants than in other studies focusing on the burnout of student-athletes (Lai & Wiggins, 2003; Lemyre et al., 2006; Wiggins et al., 2005), results cannot be generalized to the entire population. Lastly, given that cut-off scores are not provided for the ABQ (Raedeke & Smith, 2001), and little consensus has been achieved in determining appropriate cut-off criteria, results must be interpreted with caution. Nonetheless, this study serves as a base to inform future studies examining levels of burnout among other Canadian university student-athletes. It would be important to determine whether the findings of this study can be replicated with other samples.

Conclusion and Practical Implications

In conclusion, while most university student-athletes in this study had low to moderate burnout levels, some of the participants appeared to be experiencing burnout as early as one month following the start of the academic and athletic year. This supports research suggesting that student-athletes are at risk of developing burnout. While the year and type of academic program and the year of university sport participation do not appear to have a significant effect on the burnout levels of student-athletes, results suggest that female athletes are more at risk of emotional and physical exhaustion than male athletes. Furthermore, sport should be considered when examining burnout among student-athletes, as swimmers and basketball players reported high levels of emotional and physical exhaustion compared to hockey players and fencers, and fencers had greater levels of sport devaluation than hockey and volleyball players.

Given the aforementioned findings and the many negative consequences associated with burnout, we encourage coaches and other individuals influencing the performance and experience of student-athletes (e.g., professors, administrators, mentors, and counsellors) to assess and monitor the demands placed on student-athletes, their resources and coping skills, as well as their stress and burnout levels whenever possible. There are many tools that student-athletes could be taught to use to gauge their levels and seek additional support when necessary to ensure academic success and prolonged sport participation. In our view, one burnout case is one too many. Being proactive and empowering student-athletes to develop effective self-regulation skills that could allow them to adapt and meet stressful demands may be an important step in reducing the levels and risks of athlete burnout. 🍁

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Article 2

**Moving to Action: The Effects of a Self-Regulation Intervention on the Stress, Burnout,
Well-Being, and Self-Regulation Capacity Levels of University Student-Athletes**

Nicole Dubuc-Charbonneau & Natalie Durand-Bush

University of Ottawa

Moving to Action: The Effects of a Self- Regulation Intervention on the Stress, Burnout, Well-Being, and Self-Regulation Capacity Levels of University Student-Athletes

Nicole Dubuc-Charbonneau and Natalie Durand-Bush

University of Ottawa

Background: The purpose of this study was to implement and assess the impact of a person-centered, feel-based self-regulation intervention on the stress, burnout, well-being, and self-regulation capacity of eight university student-athletes experiencing burnout. This was warranted given the negative outcomes associated with athlete burnout, the scarcity of burnout research focusing on student-athletes, and the lack of intervention research addressing burnout in sport. **Method:** A mixed methods design including questionnaires administered at four time points during the athletic season, pre- and post-intervention interviews, and multiple intervention sessions was used. **Results:** Repeated-measures ANOVAs revealed that stress and burnout levels significantly decreased, and well-being and self-regulation capacity levels significantly increased as the intervention progressed. The qualitative data supported these findings. **Conclusion:** It appears that university student-athletes participating in this type of intervention can learn to effectively manage themselves and their environment to reduce adverse symptoms and improve optimal functioning.

Keywords: Self-regulation, stress, burnout, student-athletes

The drive to succeed as an athlete and as a student can lead to great achievements. However, playing the dual role of a student and athlete can be challenging as it involves considerable demands (Wilson & Pritchard, 2005). An inability to cope with such demands can cause stress, reduce well-being, and bring about burnout (Gould & Whitley, 2009). Emerging as a growing concern within sport (Gould & Whitley, 2009), burnout is a syndrome characterized by physical and emotional exhaustion, a reduced sense of accomplishment, and sport devaluation (Raedeke & Smith, 2001). According to Goodger and Jones (2012), burnout is associated with reduced self-regulation capacity. On the other hand, effective self-regulation may prevent the onset of this syndrome (Gross, 1994). There is thus merit in examining how the development of self-regulatory competence impacts burnout.

The influence of self-regulation capacity on burnout and other associated variables such as stress and well-being has never been explicitly examined in the context of university athletics, in which athletes play the dual role of athlete and student. The purpose of this study was thus to investigate the aforementioned variables in a sample of university student-athletes. Given that intervention studies designed to manage burnout in sport are sorely lacking, a unique feature of this study was to implement and assess the impact of a self-regulation intervention on the stress, burnout, well-being, and self-regulation capacity of university student-athletes experiencing moderate to high levels of burnout.

Stress and Burnout

Burnout is a concern for athletes as it has been correlated with illness/injury (Cresswell & Eklund, 2006), fatigue (Cresswell & Eklund, 2006; 2007), amotivation (Cresswell & Eklund, 2006; Lemyre, Treasure, & Roberts, 2006), loss of focus (Cresswell & Eklund, 2006; Goodger, Wolfenden, & Lavallee, 2007), self-doubt (Cresswell & Eklund, 2006; Lemyre, Hall, & Roberts, 2008), frustration (Cresswell & Eklund, 2006; Goodger, Gorely, Harwood, & Lavalle, 2007), feelings of incompetence (Cresswell & Eklund, 2007; Goodger et al., 2007), and mood disturbances (Cresswell & Eklund, 2006; Goodger et al., 2007). These correlates could arguably have a negative impact on the performance and well-being of athletes, which suggests that burnout management and prevention research is warranted.

While studies are limited, it is estimated that between one and five percent of competitive athletes experience burnout (Gustafsson, Kenttä, & Hassmén, 2011; Gustafsson, Kenttä, Hassmén, Lundqvist, & Durand-Bush, 2007). Within this population, student-athletes may be ever more susceptible to burnout given that they face both sport and academic demands (e.g., competitions, assignments, examinations) uniquely found within the collegiate environment (Kimball & Freysinger, 2003; Miller & Kerr, 2002; Wilson & Pritchard, 2005). While for some student-athletes, sport can help buffer academic stress, for others, intense training schedules, extensive traveling to competitions, and pressure to succeed can actually increase their stress (Kimball & Freysinger, 2003) and counterbalance the enjoyment they experience in sport (Gould & Whitley, 2009).

Smith (1986) illustrated the development and consequences of athlete stress and burnout in his cognitive-

affective stress-based burnout model (CASBBM), which includes four distinct components: the situation, cognitive appraisal, physiological responses, and coping and task behaviors, all of which are expected to vary based on personality and motivation. Burnout results when an increase in perceived stress-induced costs (e.g., anxiety, guilt, anger, self-derogation) outweigh the benefits (e.g., achievement of personal goals, enjoyment) that athletes can draw from the sport experience. In particular, inaccuracies in the appraisal of demands, limitations in resources to meet demands, the consequences of unmet demands, and the meaning attributed to these consequences can result in adverse stress responses and physiological arousal (e.g., tension, anger, anxiety, depression, fatigue). Athletes may then adopt various task and social behaviors to cope with the perceived imbalance and adverse responses, with coping difficulties potentially leading to decreased performance, interpersonal difficulties, and withdrawal. Smith's (1986) model has received empirical support over the years (Cresswell, 2009; Cresswell & Eklund, 2006; Cresswell & Eklund, 2007; Goodger et al., 2007; Gould, Tuffey, Udry, & Loehr, 1996) and was one of the guiding frameworks in the current study.

Well-Being

It was advocated in recent research that to fully understand stress and burnout in sport, it is important to examine variables related to optimal functioning such as well-being (Eklund, Dowdy, Jones, & Furlong, 2011). Well-being can be defined based on a hedonic dimension, that is, pleasure or happiness resulting from high positive affect and life satisfaction and low negative affect (Diener & Lucas, 1999). It can also be characterized by a eudaimonic dimension, which refers to living according to one's authentic self (Ryan & Deci, 2001) and realizing one's true potential by deriving meaning and cultivating personal growth (Searle, 2008). According to the World Health Organization (2004), well-being is a key factor allowing individuals to cope with daily stressors. As such, there is merit in examining this variable in relation to stress and burnout in sport.

It is noteworthy that while there currently are no studies focusing on these three variables in the context of sport, Neely, Shallert, Mohammed, Roberts, and Chen (2009) reported a negative relationship between stress and psychological well-being in a college student sample. Similarly, Schaufeli, Bakker, van der Heijden, and Prins (2009) found a negative correlation between burnout and psychological well-being in a study of workholism involving young doctors. It is not unreasonable to surmise that there are similar achievement and performance-related characteristics in academia, medicine, and sport. As such, one could argue that similar relationships between these variables may exist in sport. More research focusing on these constructs is warranted as it could lead to a greater understanding of the prevention and management of burnout in sport.

Self-Regulation

Another variable that could be potentially involved in burnout prevention and management is self-regulation. Self-regulation refers to an individual's capacity to plan, control, evaluate, and adapt thoughts, feelings, and behaviors to achieve personal goals (Brown, Miller, & Lawendowski, 1999; Zimmerman, 2000). Given that self-regulation involves processes that are within an individual's control (e.g., planning and evaluating), it can be developed with practice and interventions (Baumeister, Vohs, & Tice, 2007; Zimmerman, 2008). Self-regulation has been associated with both positive and negative well-being outcomes (Sanders & Mazzucchelli, 2012). In one study, university students with higher self-regulation capacity reported higher levels of well-being (Hofer, Busch, & Kärtner, 2011) and lower levels of depression and stress (Park, Edmondson, & Lee, 2012). Similarly, in the context of medicine, physicians with higher self-regulation capacity had higher levels of psychological well-being and positive affect than those with lower capacity (Simon & Durand-Bush, 2014). In another investigation, students with increased self-control had better interpersonal relationships than those with less control (Tangney, Baumeister, & Boone, 2004). In contrast, Hustad, Carey, Carey, and Maisto (2009) found that students with lower self-regulation capacity had an increased risk of alcohol-dependence. These studies suggest that self-regulation capacity may be a relevant variable to examine in the context of sport in relation to positive (e.g., well-being) and negative (e.g., stress, burnout) outcomes.

Intervention Studies

The ultimate goal in sport burnout research is arguably to generate and transfer empirical knowledge to prevent and manage this syndrome. An important step in this process is to examine intervention studies aimed at reducing stress and burnout. Within the occupational literature, Cooley and Yovanoff (1996) found that educators who took part in a series of stress management workshops had significantly lower burnout scores than counterparts who did not participate. Similarly, after taking part in a 5-week group intervention focusing on cognitive restructuring, healthcare practitioners were significantly less burned out than those within the control group (Van Dierendonck,

Schaufeli, & Buunk, 1998). Two other studies showed that peer support groups can alleviate stress and significantly reduce levels of workplace burnout (Le Blanc, Hox, Schaufeli, Taris, & Peeters, 2007; Peterson, Bergström, Samuelsson, Asberg, & Ngren, 2008).

Intervention studies designed to reduce athlete stress or burnout are scarce. While Davis, Botteril, and MacNeill (2002) presented a cognitive-behavioral intervention model aimed at preventing under-recovery, the efficacy of this model remains largely untested. However, a study conducted with college student-athletes did provide empirical support for the use of cognitive-behavioral interventions (Brent, 2004). It revealed that those who took part in group sessions targeting the use of self-talk, imagery, and relaxation had lower negative affect and distress than student-athletes who did not participate. In another study, the implementation of a cognitive-affective stress management training program based on Smith's (1986) CASBBM led to lower levels of negative thinking among volleyball players (Crocker, Alderman, & Smith, 1988). There is also empirical support for the use of visual-motor behavioral rehearsal (Suinn, 1972) and stress inoculation training (Meichenbaum, 1977) for stress reduction among athletes. It is noteworthy that these studies targeted stress and not burnout. To date, Joupper and Gustafsson's (2013) study involving mindfulness training is the only athlete-specific investigation demonstrating the potential of an intervention to reduce or prevent athlete burnout. In this single case study, the athlete reported lower burnout scores and a greater sense of self-awareness. Given the lack of studies examining athlete-specific burnout interventions, more research is warranted.

There have been other intervention studies conducted with athletes in the context of sport, however, these were designed to enhance performance and well-being. Specifically, Durand-Bush and colleagues illustrated the positive effects of a feel-based, person-centered self-regulation intervention on the performance and well-being of various athletes (Arcand, Durand-Bush, & Miall, 2007; Callary & Durand-Bush, 2008; Collins & Durand-Bush, 2010; Lussier-Ley & Durand-Bush, 2009). These interventions were guided by the Resonance Performance Model (RPM; adapted from Newburg, Kimiecik, Durand-Bush, & Doell, 2002), a framework used to help individuals learn how to regulate how they feel, think, and behave to achieve congruency between their inner self and their environment (Callary & Durand-Bush, 2008).

The RPM comprises the following four components: (a) The Way One Wants to Feel, (b) Preparation, (c) Obstacles, and (d) Revisit the Way One Wants to Feel (Callary & Durand-Bush, 2008; Newburg et al., 2002). In the first component, The Way One Wants to Feel, athletes identify how they want to feel from a multidimensional perspective (e.g., physically, mentally, emotionally, socially, and/or spiritually) in various contexts and situations. This is a malleable process given that the way one wants to feel can vary across situations and evolve over time as one engages in self-observation, self-monitoring, and self-reflection (Newburg et al., 2002).

Within the Preparation component, athletes work to develop and implement skills and strategies (i.e., ways to think and behave) allowing them to feel the way they want as often as possible while achieving their desired goals (Newburg et al., 2002). It is important that these strategies be tailored to the individual's needs and preferences. Past studies show that strategies can be physical (e.g., pregame warm-up), cognitive (e.g., mental rehearsal), technical or tactical (e.g., sport-related training exercise), social (e.g., communication), organizational (e.g., time management), and/or emotional (e.g., release technique) in nature (Collins & Durand-Bush, 2010; Lussier-Ley & Durand-Bush, 2009).

Obstacles, the third component, is based on the premise that individuals encounter day-to-day challenges and obstacles that can prevent them from feeling the way they want. The resonance process leads them to anticipate and accept life's inevitable challenges rather than deny or avoid them. The intervention thus involves helping athletes to identify and embrace obstacles, which can be internal (e.g., self-doubt, fear, negative thoughts) or external (e.g., parental pressure, lack of communication with coach; Collins & Durand-Bush, 2010). By recognizing how they initially or typically respond to obstacles and by having a crucial reference point (e.g., clear and tangible desired way to feel) to which they can bring themselves and strategies to do so, individuals can more efficiently deal with obstacles in their daily life (Simon & Durand-Bush, 2009).

In the last component, Revisit the Way One Wants to feel, individuals identify what allows them to re-experience the way they want to feel after being disconnected from it as a result of obstacles or setbacks. In doing so, athletes often employ some of the preparation strategies they previously established and/or develop new strategies in response to the obstacles they have recently faced. This component helps athletes to avoid the "obstacle-preparation loop" in which there is the potential to go back to training after encountering an obstacle without having achieved desired feel, potentially leading them to lose focus, motivation, and satisfaction (Callary & Durand-Bush, 2008; Newburg et al., 2002).

Overall, it was found that participating in an 8–12-week self-regulation intervention guided by the RPM can lead to perceived enhanced performance and well-being (Arcand et al., 2007; Callary & Durand-Bush, 2008; Collins & Durand-Bush, 2010; Lussier-Ley & Durand-Bush, 2009; Simon & Durand-Bush, 2009). It was inferred from these findings that the use of the RPM as an intervention framework may possibly help athletes to identify and manage feelings, thoughts, and behaviors contributing to their experience of stress and burnout, and develop important coping

strategies (Arcand et al., 2007; Simon & Durand-Bush, 2009). As such, the RPM was used in combination with Smith's (1986) CASBBM to guide the current intervention study with a student-athlete population.

Purpose and Rationale of the Study

As previously mentioned, the purpose of this study was to implement and assess the impact of a self-regulation intervention on the stress, burnout, well-being, and self-regulation capacity of university student-athletes experiencing moderate to high levels of burnout. The rationale for conducting this study stemmed from (a) the negative outcomes associated with athlete burnout, (b) the scarcity of burnout research focusing on student-athletes, (c) the lack of intervention research addressing burnout in sport, and (c) the potential for expanding the use of the RPM with a vulnerable population and integrating Smith's (1986) CASBBM to guide interventions.

A mixed methods design was employed to carry out the study and this manuscript primarily focuses on the quantitative results. A summary of the qualitative findings was included to provide additional support. Based on the positive outcomes that emerged from previous feel-based, person-centered self-regulation interventions implemented with athletes (Arcand et al., 2007; Callary & Durand-Bush, 2008; Collins & Durand-Bush, 2010; Lussier-Ley & Durand-Bush, 2009), it was hypothesized that student-athletes' participation in the intervention would be associated with increased levels of self-regulation capacity and well-being, and decreased levels of stress and burnout.

Method

Research Paradigm

This study was guided by the participatory paradigm, a perspective based on action that advocates the role of practical knowledge as a contributor to human flourishing (Heron & Reason, 1997). A fundamental principle of this paradigm is that individuals are capable of interpreting and understanding their own behavior. As such, research is thought to be guided by the values of all involved and to continue to develop as an emergent process as issues are discussed (Reason & Riley, 2007). Given that individuals' experiences are assumed to be shaped by others, this approach is centered on a collaboration between the researcher and the participants throughout the research process (Heron & Reason, 1997; Reason & Riley, 2007). The interventions facilitated by the researcher in this study were person-centered, and the participants were required to play an active role throughout the process. Notwithstanding this, the researcher was an important agent of change and her role in the interventions must be taken into account. The participatory paradigm was well suited for this study with its primary goal of empowering participants with a sense of autonomy and control (Reason & Riley, 2007). Since individuals experiencing burnout tend to perceive a lack of autonomy and control in their life (Coakley, 1992; Lonsdale, Hodge, & Rose, 2009), this paradigm was fitting to help them regain these aspects during the intervention. In addition, much like the processes inherent in self-regulation interventions (Simon & Durand-Bush, 2009), the participatory worldview emphasizes the importance of self-awareness and self-reflection in the development of knowledge (Heron & Reason, 1997).

The researcher's experiences as a certified mental performance consultant and graduate level training in the areas of counseling, mental training, and ethics provided adequate preparation to implement the interventions. The researcher also participated in a bracketing interview, which allowed her to acknowledge and critically reflect on the interview guide and on any preconceived biases she may have had regarding anticipated participant responses (Rolls & Relf, 2006). This, and her extensive consulting experience with university student-athletes, enabled her to effectively deliver the interventions and contributed to a deeper understanding of the student-athletes' experiences.

Participants

Eight university student-athletes, four men (M age = 21.5) and four women (M age = 18.8), from two Canadian universities took part in an individual feel-based, person-centered self-regulation intervention spanning their competitive season. Included among participants were hockey players ($n = 4$), swimmers ($n = 2$), a fencer ($n = 1$), and a basketball player ($n = 1$). In terms of year of sport participation, four of them were rookies, one was in her second season, two were in their third, and one was participating in her fourth season. These student-athletes were selected due to their high scores (3.0 or higher) on the reduced sense of accomplishment and physical and emotional

exhaustion subscales of the Athlete Burnout Questionnaire (ABQ), as these two dimensions are known to be early indicators of burnout (Cresswell & Eklund, 2006; Goodger et al., 2007; Gustafsson et al., 2008).

Procedures

Screening phase. Before collecting the data, approval was obtained from the research ethics boards of the two universities involved in the study. Next, to identify potential eligible participants for the intervention, the researcher contacted the coaches of the universities' various sports to obtain permission to distribute the ABQ (Raedeke & Smith, 2001) to their student-athletes. A total of 147 student-athletes completed the ABQ along with a demographic questionnaire approximately 1 month following the start of their academic year and athletic season. As previously mentioned, those scoring a minimum of 3.0 on the physical and emotional exhaustion and reduced sense of accomplishment subscales (not excluding those who also had high scores on sport devaluation) and who had checked off a box on the consent form expressing interest in participating in the intervention were contacted. A total of 15 student-athletes met the selection criterion; however, given the time constraints required to deliver the individual person-centered interventions, only eight participants were recruited. Initially, the eight participants with the highest scores were contacted. One participant declined, and as such, the student-athlete with the next highest scores was recruited. The selected participants' scores on the ABQ served as a baseline measure of burnout for the intervention.

Preintervention phase. The eight student-athletes who consented to take part in the intervention participated in a 60-min semistructured preintervention interview. This interview was tape recorded and held approximately 2–3 weeks after the screening phase, depending on the participants' availability. The researcher aimed to build rapport, introduce intervention concepts, and get a better understanding of the student-athletes' previous sport experiences. The researcher also obtained additional baseline data by asking the participants to complete a series of questionnaires (see measures in subsequent section) just before conducting the preintervention interview to assess levels of stress, well-being, and self-regulation capacity (burnout levels were determined based on their scores from the screening phase).

Intervention phase. The intervention phase began approximately 1 month following the screening phase based on the participants' availability. The intervention spanned the rest of the student-athletes' athletic season and consisted of 7–9 individual biweekly sessions, depending on the length of the season. The sessions were tape recorded and lasted 40–60 min. The semistructured intervention guide, informed by the RPM (Simon & Durand-Bush, 2009) and the CASBBM (Smith, 1986), allowed the researcher and student-athletes to discuss and work through themes such as perceived demands, resources, imbalances/obstacles, behavioral and emotional responses, self-management, preferred standards (e.g., how they wanted to feel), goals, preparation and coping/revisiting strategies, and performance outcomes.

The two aforementioned integrated models provided a comprehensive self-regulation intervention framework to work with these athletes experiencing burnout. For instance, both models focus on the interaction between athletes' inner states and their environment and emphasize their role in appraising and managing thoughts, feelings and behaviors to optimally function and overcome obstacles. These two models also drive the need for action through the implementation of individualized preparation or coping/revisiting strategies aimed at improving well-being and performance. The RPM complements the CASBBM with its main focus on emotional experiences, which are peripherally emphasized in the CASBBM. Although the CASBBM has seldom been used as an intervention framework, it lends itself well to modifying negative thoughts and controlling physiological arousal through the use of self-control and stress management techniques.

With these models' attention to appraisal/reflection and empowerment, an important component of the intervention was reflection. Consequently, the student-athletes kept a reflective journal to document their daily thoughts, behaviors, and how they felt along with any pertinent information regarding their effective or ineffective regulation of stress, burnout, and well-being (see Arcand et al., 2007; Simon & Durand-Bush, 2009). To maximize compliance, they journaled using their preferred method, by engaging in free-writing, charting the way they felt over a 24-hr period on a provided graph, or by completing a handout that included self-reflective questions. They were also given flexibility regarding the number of journal entries they completed each week, so as to not contribute to additional stress. To quantitatively track changes in levels of burnout, stress, well-being, and self-regulation capacity, the participants completed each of the questionnaires (see measures in subsequent section) at midpoint (during their 4th session) and again during their last intervention session.

Postintervention phase. Each student-athlete took part in a 60-min postintervention interview taking place 4–5 weeks following their last intervention session, based on their availability. The purpose of this interview was to explore the student-athletes' experiences and lessons learned by taking part in the intervention and to obtain final measures to determine if any potential changes were significant and long-lasting. Therefore, the student-athletes were asked to complete the same measures for stress, well-being, and self-regulation capacity. Burnout was not

assessed during the postintervention phase as the student-athletes' competitive athletic season had ended and consequently, the sport-specific items found within the ABQ were not applicable.

Measures

Burnout. The student-athletes' level of burnout was measured using the ABQ (Raedeke & Smith, 2001). This 15-item self-report instrument comprises three 5-item subscales (i.e., emotional and physical exhaustion, reduced sense of accomplishment, sport devaluation), scored using a 5-point Likert scale. The ABQ was selected due to its predominant use to assess athlete burnout (Cresswell & Eklund, 2007; Gustafsson et al., 2008; Hodge, Lonsdale, & Ng 2008; Lemyre et al., 2006) and its previously established validity and reliability. Raedeke and Smith (2001) initially reported that the subscales' internal consistency was greater than .70 and test-retest reliability coefficients ranged from .86–.92.

Stress. To measure the degree to which situations were appraised as stressful, student-athletes completed the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983). This 14-item questionnaire asks participants to rate on a 5-point Likert scale how often they have felt or thought a certain way in the past month. Initially tested with three different college aged samples, this scale's internal consistency and test-retest reliability alpha coefficients ranged from .84 to .86, thus exceeding Nunally's (1978) recommended standards.

Well-being. The student-athletes' level of subjective well-being and psychological functioning was measured using the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS; Tennant et al., 2007). This self-report scale consists of 14 items measuring hedonic (i.e., subjective experiences of happiness and life satisfaction) and eudaimonic (i.e., psychological functioning and self-realization) well-being. Using a 5-point Likert scale, student-athletes were asked to rate each statement based on how they have thought or felt over the past 2 weeks. The WEMWBS was validated with a college student population and demonstrated acceptable internal consistency ($\alpha = .89$) and test-retest reliability ($\alpha = .83$) (Stewart-Brown & Janmohamed, 2008).

Self-regulation. To assess self-regulation capacity, the student-athletes completed the Short Version of the Self-Regulation Questionnaire (SSRQ; Carey, Neal, & Collins, 2004), which was adapted from the 63-item Self-Regulation Questionnaire (SRQ, Brown, Miller, & Lawendowski, 1999). Measured using a 5-point Likert scale, the items reflect personal (i.e., cognitive and affective states), behavioral, and social/ environmental components of self-regulation and measure reactive (e.g., responses to adversity) and proactive (e.g., planning) processes. Validated with an undergraduate student population, the SSRQ demonstrated high internal consistency ($\alpha = .92$) and a high correlation ($r = .96$) with the original SRQ.

Data Analysis

Descriptive statistics were obtained to examine burnout (i.e., physical and emotional exhaustion, reduced sense of accomplishment, sport devaluation), stress, well-being, and self-regulation capacity scores at Time 1 (preintervention), 2 (mid-intervention), 3 (end of intervention), and 4 (postintervention; no burnout scores). Repeated-measures ANOVAs were performed to identify any significant changes in the dependent variables over the course of the intervention. The Bonferonni correction was used for all tests to reduce the chances of obtaining type 1 errors. Furthermore, all of the tape recorded sessions were transcribed verbatim, and the data were both inductively and deductively content analyzed using the RPM and the CASBBM (Hsieh & Shannon, 2005). This enabled the assessment of perceived changes in levels of stress, burnout, well-being, and self-regulation capacity, and the triangulation of these data with the quantitative results.

Results

Descriptive Statistics

Table 1 presents the mean scale scores and standard deviation scores for all measures and time points. Standardized skewness and kurtosis coefficients were all within the acceptable range of ± 2 (West, Finch, & Curran, 1995), thus the data were normally distributed.

Scores from the ABQ (Raedeke & Smith, 2001) obtained before the intervention revealed that the student-athletes had moderate to high emotional and physical exhaustion and reduced sense of accomplishment at baseline, and this decreased as the student-athletes progressed through the intervention. Even though early mean devaluation scores were not elevated, by the last intervention session, these scores had decreased. Next, while the student-athletes' well-being was initially below the normative standard for university students, it surpassed the norm at postintervention

(Stewart-Brown & Janmohamed, 2008). Similarly, the student-athletes' stress levels dropped below the norm after they took part in the intervention. Lastly, the participants' self-regulation capacity was well below the norm for a university sample before the intervention (Carey et al., 2004), however, it considerably improved as the intervention progressed.

Repeated Measures ANOVAs

Table 2 presents the results of the repeated-measures ANOVAs. Mauchly's Test of Sphericity was performed to validate each repeated-measures ANOVA.

Burnout. With regards to physical and emotional exhaustion, the sphericity assumption was not violated, $\chi^2(2) = 3.427$, $p = .180$. Mean levels of physical and emotional exhaustion significantly differed between time points, $F(2, 14) = 21.10$, $p < .001$, $\eta^2 = .646$. Post hoc tests using the Bonferroni correction revealed significant reductions in levels of exhaustion from pre- to midintervention ($p = .015$) and from pre- to end of the intervention ($p = .002$).

Table 1 Descriptive Statistics for Burnout (PEE, RA, DV), Stress, Well-Being, and Self-Regulation Capacity From Preintervention Phase to Postintervention Phase

Time Points	PEE		RA		DV		Stress		WB		SR	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Time 1	3.55	0.53	3.45	0.37	2.15	0.73	33.6	5.0	41.5	6.5	89.9	16.4
Time 2	2.45	0.53	2.88	0.65	2.15	0.57	22.3	7.8	51.3	5.6	105.5	15.5
Time 3	2.17	0.31	2.20	0.64	1.67	0.34	19.3	9.0	55.3	7.7	114.0	17.1
Time 4	-	-	-	-	-	-	18.6	10.6	57.6	9.9	118.9	17.7

Note. PEE = physical and emotional exhaustion; RA = reduced sense of accomplishment; DV = sport devaluation; SR = self-regulation capacity; WB = well-being.

Table 2 Repeated Measures ANOVAs for Burnout, Stress, Well-Being, and Self-Regulation Capacity

Source	Measure	SS	df	MS	F	p
Time	PEE	8.470	2.000	4.235	21.100	0.000**
	RA	6.263	2.000	3.132	11.818	0.001*
	DV	1.203	1.204	1.000	3.515	0.092
	Stress	1167.125	3.000	726.014	15.161	0.001*
	Well-Being	1212.844	1.606	755.282	14.871	0.001*
	SR	3884.125	3.000	1723.879	12.042	0.000**

Note. *Significant at the $p < 0.01$ level; **Significant at the $p < 0.001$ level; PEE = physical and emotional exhaustion; RA = reduced sense of accomplishment; DV = sport devaluation; SR = self-regulation capacity; WB = well-being.

The sphericity assumption for reduced sense of accomplishment was not violated, $\chi^2(2) = 4.111$, $p = .128$. There were significant differences in levels of reduced sense of accomplishment across time points, $F(2, 14) = 11.82$, $p = .001$, $\eta^2 = .480$. Post hoc tests using the Bonferroni correction showed that while no differences emerged from Time 1 (preintervention) to Time 2 (midintervention) ($p = .234$), student-athletes reported significantly higher levels of accomplishment at Time 3 (end of intervention) compared with Time 1 ($p = .016$) and at Time 3 compared with Time 2 ($p = .007$).

Lastly, the sphericity assumption for sport devaluation was violated, $\chi^2(2) = 6.499$, $p = .0039$, therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = 0.61$). A repeated-measures ANOVA with Greenhouse-Geisser corrections showed moderate, though nonsignificant decreases in sport devaluation scores across time points, $F(1.20, 8.43) = 3.52$, $p = .092$, $\eta^2 = .150$.

Stress. The sphericity assumption was not violated, $\chi^2(2) = 8.093$, $p = .156$. There were significant differences in stress levels across time points, $F(3, 21) = 15.16$, $p < .001$, $\eta^2 = .374$. Post hoc analyses using the Bonferroni correction showed that levels of stress significantly decreased from pre- to midintervention ($p = .005$), from pre- to end of the intervention ($p = .15$), and from pre- to postintervention ($p = .027$).

Well-being. The sphericity assumption was violated, $\chi^2(5) = 12.130$, $p = .0035$, therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity ($\epsilon = 0.54$). Mean well-being levels significantly varied across time points, $F(1.60, 11.24) = 14.87$, $p = .001$, $\eta^2 = .426$. Post hoc analyses using the Bonferroni correction showed that levels increased from pre- to midintervention ($p = .024$), pre- to end of the intervention ($p = .044$), and pre- to postintervention ($p = .013$). Levels also significantly increased from mid- to postintervention ($p = .038$).

Self-regulation capacity. Finally, the sphericity assumption was not violated for self-regulation capacity, $\chi^2(5) = 2.756$, $p = .741$. Self-regulation capacity significantly differed between time points, $F(3, 21) = 12.04$, $p < .001$, $\eta^2 = .332$. Post hoc analyses using the Bonferroni correction showed that levels significantly increased from Time 1 (preintervention) to Time 3 (end of intervention) ($p = .033$) and from Time 1 to Time 4 (postintervention) ($p = .019$).

Qualitative Findings

Overall, the qualitative data provided by the student-athletes throughout the study reflect the changes emerging from the quantitative analyses. All eight student-athletes explained that in participating in the intervention, they learned to become increasingly aware of how they currently felt and how they wanted to feel. They were empowered to take decisions and make changes that were in line with their desired thoughts, feelings, and behaviors. One athlete explained, “I learned how to recognize when I am feeling burned out, what is causing that, and that I can change it.” Similarly, a hockey player shared, “I think I was burned out when we first met and now I am not because I know how to deal with stress; I don’t let it build up.” Seven of the eight student-athletes noted that they felt less stressed and more content in their sport environment. They were also more motivated to achieve their athletic goals. For example, one swimmer explained, “I used to try and get through practice but now I am trying to accomplish something. I feel much better in the pool and I am doing it for me and not for my coach.” Six athletes shared that they were also more motivated to succeed academically and were implementing various strategies (e.g., prioritizing assignments, studying, seeking assistance from tutor or academic advisor) to improve their grades. In the end, when asked about their experiences regarding taking part in the intervention, the student-athletes highlighted that the person-centered approach gave them the opportunity to share personal experiences and take an active role in the process of change. One athlete admitted: “I felt really comfortable right away and I didn’t expect that . . . by giving me the floor every time we met, you let how I had been feeling dictate what I learned. I liked that because different things work for different people.”

Discussion

This study examined the impact of a person-centered, feel-based self-regulation intervention on the burnout, stress, well-being, and self-regulation capacity levels of university student-athletes. Taken together, the results demonstrate that the intervention was associated with positive changes. Specifically, the student-athletes quantitatively and qualitatively reported a reduction in their stress and burnout levels and an increase in their well-being and capacity to self-regulate, which supports our initial hypotheses. The following discussion will provide insight into links with the existing literature as well as the benefits and limitations of the intervention.

First, it is noteworthy that the student-athletes’ levels of physical and emotional exhaustion and reduced sense of accomplishment were higher than their level of sport devaluation at all time points, which supports findings from previous studies using the ABQ (Cresswell & Eklund, 2006; Hill, Hall, Appleton, & Kozub, 2008; Hodge et al., 2008). The low baseline levels in sport devaluation in the current study could, in part, explain the lack of significance in pre and postintervention sport devaluation scores, that is, they left little room for improvement in this area.

Furthermore, longitudinal studies by Cresswell and Eklund (2007) and Gustafsson et al. (2007) demonstrated that athletes’ burnout experiences change throughout their sport season, and this was also the case in the current study. Instead of potentially getting worse as the student-athletes’ academic and sporting demands increased throughout the season, their burnout symptoms were alleviated. For example, their early season was characterized by feelings of exhaustion, however, these decreased as the season progressed. In addition, while their perceived levels of accomplishment and sport devaluation improved throughout the study, the most notable changes emerged in the latter phases of the intervention. Future research should examine whether levels of exhaustion must first typically decrease in the alleviation of burnout symptoms, before improvements in the other two dimensions of burnout can be observed.

The student-athletes initially reported a subpar capacity to self-regulate when compared with normative data stemming from a university student population (Carey et al., 2004). As the intervention progressed and they began taking part in self-monitoring, self-reflection and feeling more the way they wanted, their self-regulation scores

increased progressively and peaked toward the end of the intervention. This is not surprising since effective self-regulation is a learned skill requiring effort and motivation (Zimmerman, 2000). It is highly possible that several intervention sessions were required in order for the student-athletes to learn and integrate self-regulation strategies into their daily life. While early improvements in self-regulation capacity were not statistically significant, sharing experiences with the researcher and being introduced to preparation and coping strategies such as goal setting, time management, and journaling may have been sufficient in generating early positive changes in the student-athletes' emotional and physical exhaustion, stress, and well-being levels.

The positive influence of the self-regulation intervention on the outcome variables supports previous findings from intervention-based studies using the RPM (Callary & Durand-Bush, 2008; Collins & Durand-Bush, 2010; Lussier-Ley & Durand-Bush, 2009; Simon & Durand-Bush, 2009). It highlights the potential role that effective self-regulation can have not only in achieving optimal functioning (e.g., satisfaction, motivation, self-efficacy) (Zimmerman, 1996) but also in reducing anxiety and other negative states (Simon & Durand-Bush, 2009). Specifically, similar to what Gould and Whitley (2009) found, the student-athletes in this study faced many constraints associated with conflicting academic and athletic schedules and as such, the tailored time-management strategies allowed them to prioritize and gain a greater sense of control. In addition, many of the student-athletes' experiences were novel (e.g., living away from home, nurturing new social relationships, financial strains, increased academic and athletic workloads, etc.). Therefore, gaining awareness of emerging personal needs and seeking proactive ways to fulfill these needs became essential to their success. While the self-reported scores showed promising results, the positive influence of the intervention was also reflected in the student-athletes' persistence and continued sport participation as each athlete completed his and her athletic season. The qualitative data revealed that they did so with an increased level of motivation and positive affect. In addition, despite not having measured academic success, many student-athletes shared that greater self-discipline led to positive academic achievement and most importantly, allowed them to feel a sense of academic fulfillment.

The relationship that was formed between the student-athletes and the researcher must be acknowledged. In creating an environment that fostered personal growth, understanding, and trust, it is likely that the participants felt empowered to feel the way they wanted and reach their personal goals, which may have prompted continued self-regulatory efforts. This supports Zimmerman's (2000) finding that one's capacity to self-regulate is influenced by the presence of others. Schunk (2001) extended this by stating that self-regulation competence "develops initially from social sources and subsequently shifts to self-sources" (p. 142). Both the quantitative and qualitative results showed that the student-athletes felt less stressed and increasingly more well as they worked with the researcher to reflect on and implement self-regulation strategies such as effective time management and cognitive restructuring (e.g., thought stopping, positive thinking). It appears that offering them a safe environment in which they felt comfortable voicing concerns and coping with demands and experiences may have helped to lead them to personal growth and enhanced well-being.

Despite the aforementioned promising results, some limitations must be discussed. First, while Smith's (1986) CASBBM was perceived to be a potentially valuable intervention framework, it has seldom been applied in intervention studies, thus more research is warranted to examine its merits. Smith's model does not focus on proactive self-regulation and minimizes the role of emotions in the development of burnout, despite the intimate relationship shown to exist between stress and emotions (Lazarus, 1966). Attempting to address these gaps, the CASBBM and the RPM were integrated into a framework used to guide the intervention. However, this was not necessarily seamless and it was challenging to address all components during the intervention. For example, to elicit a more holistic understanding of how the participants felt and wanted to feel, the researcher examined several dimensions based on the RPM rather than just physical and physiological responses targeted within Smith's model. Furthermore, while coping strategies were acknowledged (CASBBM), the researcher also emphasized the importance of preparation strategies to work toward optimal functioning and allow the participants to prevent or appraise barriers more favorably to reduce the onset of stress. Given that this was the first study to blend the CASBBM and the RPM, the intervention design was kept malleable enough to tailor it to participants' needs.

Given the person-centered nature of the interventions, there were evidently variations in the themes and strategies discussed based on the student-athletes' needs and preferences. Furthermore, the duration of the intervention varied as it depended on the length of the student-athletes' season. As such, the current study does not provide a distinct nor generalizable intervention template but rather demonstrates the benefits of a flexible framework that can be tailored to meet specific needs. It was clear from the onset of the study that the purpose was not to extrapolate results to all student-athletes experiencing symptoms of burnout. The participatory paradigm was chosen to focus on the process of change of each participant and acknowledge the role of the researcher in the construction of knowledge. As such, the active stance of the researcher was seen as a strength rather than a limitation in this study. The sample was limited to eight student-athletes and this was deemed sufficient given the lengthy multiple-session interventions conducted by the researcher. However, additional research is required with more student-athletes to support the findings of this study and to eventually provide more generalizable results. Even though burnout experiences are

highly individualized (Gustafsson et al., 2008), using a group intervention approach to develop self-regulation skills with university student-athletes in early phases of burnout could be a means to include more participants in future studies.

An additional limitation pertains to the sports in which the student-athletes competed. To obtain longitudinal trends in the data and to allow for intervention effects to emerge later in the season, sports were limited to those for which the season spanned most of the academic year, thus reducing the number of potential eligible sports. In addition, there was an over-representation of hockey players in the sample ($n = 4$) given that they met the selection criteria and agreed to participate in the intervention, which is an interesting finding in and of itself. Finally, given that participants were selected based on their self-reported scores on the ABQ (Raedeke & Smith, 2001), and volunteered to take part in the intervention, it is possible that they were initially more motivated and self-aware of their level of burnout and wanted to take the necessary steps to reduce it. Lastly, even though we collected follow-up data 1 month after the completion of the intervention, long-term effects were not assessed. While this would have been ideal, time constraints and challenges of maintaining contact with student-athletes were among factors preventing the evaluation of long-term effects.

Conclusion

In sum, the current study helps to fill an important void in the literature as it is the first to examine an intervention designed specifically to reduce student-athlete burnout. Results demonstrated that participating in a feel-based, person-centered self-regulation intervention was associated with reduced burnout and stress and increased well-being and self-regulation capacity among the student-athletes experiencing burnout in this study. Given that the severity of burnout symptoms can worsen as a season progresses (Cresswell & Eklund, 2007), the reduction of burnout levels throughout the intervention is promising. However, intervention research targeting athlete burnout is in its infancy and intervention studies are lacking. Consequently, there is a dire need to continue to implement and assess the impact of self-regulation interventions with vulnerable athletic populations to corroborate these findings. Finally, this study shows the importance of early detection of burnout. The student-athletes in this study showed signs of burnout at the onset of their academic and sport season but it appears that they were able to reduce levels by learning to effectively manage themselves and their environment. Coaches and practitioners should be proactive in assessing and monitoring student-athletes' levels of stress, burnout, and well-being throughout their competitive season and nurture their self-awareness and self-regulation capacity to ensure positive outcomes and sustained participation.

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Article 3

**Learning to Self-Regulate to Alleviate Burnout:
A Multiple Case Intervention Study Highlighting University Student-Athletes' Experiences**

Nicole Dubuc-Charbonneau & Natalie Durand-Bush

University of Ottawa

Abstract

Despite negative consequences associated with sport burnout, few studies have examined interventions for remediating this condition (Cresswell & Eklund, 2006; Jouper & Gustafsson, 2013). The aim of the current study was to investigate the experiences of four university student-athletes taking part in a person-centered, feel-based self-regulation intervention designed to reduce stress and burnout symptoms and to increase well-being. A basketball player, a fencer, a hockey player, and a swimmer, whose early season scores on the Athlete Burnout Questionnaire (Raedeke & Smith, 2001) revealed early signs of burnout, took part in (a) bi-weekly intervention sessions with a trained researcher over the course of their athletic season, and (b) pre and post-intervention interviews. A qualitative content analysis was performed and narratives were created to depict each student-athlete's unique experiences throughout the intervention. Through a tailored educational approach, student-athletes learned to develop their self-regulation skills using processes such as goal-setting, planning, time management, cognitive restructuring, self-control, visualization, and self-reflection. In doing so, the athletes were able to increase their efficacy in mobilizing their resources and managing the many academic and sport-related demands they faced throughout their tumultuous season. This, in turn, helped them to experience less stress and burnout symptoms as well as more quality performances and well-being. Person-centered, feel-based, self-regulation interventions appear to be a promising means to alleviate stress and burnout in university student-athletes.

Introduction

Understanding Athlete Burnout

The culture of university sport is one in which athletes must adapt to the complexities of playing the dual role of student and athlete, while learning to function independently as a young adult. Heightened expectations for athletic success, paired with a shift in academic and social pressures that result in chronic stress, are among reasons why athletic burnout has become the focus of research within this context (Gould & Whitley, 2009). Athletic burnout is a condition characterized by emotional and physical exhaustion, reduced accomplishment, and sport devaluation (Raedeke & Smith, 2001). The experience of burnout is unique and varies from one athlete to the next (Gustafsson, Kenttä, Hassmén, Lundqvist, & Durand-Bush, 2007), which explains why understanding the development and effects of this condition is a complex and challenging task.

The situation or environment plays an important role in the burnout process (Gustafsson, Kenttä, & Hassmén, 2011; Smith, 1986). Situational factors such as power dichotomies, external pressure, lack of social support (Coakley, 1992; Gould, Tuffey, Udry, & Loehr, 1996; Gustafsson, Hassmén, Kenttä, & Johansson, 2008), and excessive training demands (Cresswell & Eklund, 2006) contribute to the development of athlete burnout. Burnout is also impacted by personality factors such as high trait anxiety (Gualberto Cremades, University, Wiggins 2008) and perfectionism (Gustafsson et al., 2008).

Common symptoms and consequences of burnout include fatigue (Cresswell & Eklund, 2006), lethargy (Cresswell & Eklund, 2006; Goodger, Wolfenden, & Lavalley, 2007), amotivation (Cresswell & Eklund, 2006), low perceived autonomy and competence (Hodge, Lonsdale, & Ng, 2008), lack of focus (Cresswell & Eklund, 2006; Goodger et al., 2007), self-

doubt (Cresswell & Eklund, 2006), frustration (Cresswell & Eklund, 2006; Goodger et al., 2007), and mood disturbances (Cresswell & Eklund, 2006; Gustafsson et al., 2008). As well, athletes may experience reoccurring illness and injury (Cresswell & Eklund, 2006), compromised sport performance (Cresswell & Eklund, 2006), and withdrawal (Smith, 1986). Gustafsson and colleagues (2007) found that the type and severity of burnout symptoms and the time frame over which they develop fluctuate among athletes. In fact, findings from their case study research suggest that the burnout experience cannot be characterized by a universal profile and a customized approach must be taken when intervening with athletes experiencing burnout.

Managing Athlete Burnout

One particular approach that can be personalized to help athletes manifesting symptoms of burnout involves self-regulation (Durand-Bush, McNeill, & Collins, 2015; Goodger, Lavalley, Gorely, & Harwood, 2006). Self-regulation is arguably an important skill to nurture in vulnerable populations such as burned out athletes as it promotes self-efficacy, motivation, realistic goals and expectations, self-control, as well as sound attributions. It also underscores adaptation to changing demands and contexts. Zimmerman (2000) defined self-regulation as our capacity to proactively plan, generate, evaluate, and adapt our thoughts, feelings, and actions in order to achieve personal standards and goals in a constantly changing environment. Although we all have the capacity to self-regulate, the effectiveness with which we do so depends on our resources (e.g., capability to acquire and apply various self-motivated processes such as planning, self-monitoring, self-reflection) and demands (e.g., internal and external expectations). Durand-Bush, Collins, and McNeill (2012) found that depleted coaches experiencing high levels of stress as a result of numerous demands and inadequate resources had difficulty self-regulating.

This is not surprising since individuals must invest time, effort, and focus into developing and maintaining their self-regulation capacity (Collins & Durand-Bush, 2010; Zimmerman, 2000).

One way to increase self-regulation capacity is through guided interventions (Durand-Bush et al., 2015). Intervention studies with healthy athletes (Callary & Durand-Bush, 2008; Collins & Durand-Bush, 2010) and university students (Simon & Durand-Bush, 2009) have shown that their capacity to self-regulate can be enhanced by participating in a person-centered, feel-based self-regulation intervention. In particular, these interventions were guided by the Resonance Performance Model (RPM; Callary & Durand-Bush, 2008), an educational framework focusing on how individuals feel in the process of achieving their goals and leading them to experience resonance (i.e., congruence between themselves and their changing environment). The aforementioned studies showed that the multiple personalized strategies that participants acquired to develop self-regulation capacity led to perceived heightened performance and well-being. However, it remains unclear if such interventions would be effective with vulnerable athletes.

Effective self-regulation has been linked with positive outcomes in other studies as well. For example, university students with high self-regulation capacity reported high levels of well-being (Hofer, Busch, & Kärtner, 2011), low levels of depression and stress (Park, Edmondson, & Lee, 2012), and healthy interpersonal relationships (Tangney, Baumeister, & Boone, 2004). Interestingly, the relationship between self-regulation capacity and the specific construct of burnout in university student populations, including student-athletes, has yet to be examined.

Goodger et al. (2006) made a call for more burnout interventions a decade ago and recommended tailoring them by personalizing goals, monitoring expectations, and promoting self-monitoring and identity development. However, to date, only one study has directly

examined the impact of an intervention on athlete burnout (Jouper & Gustaffson, 2013). This intervention targeted mindfulness rather than specific self-regulation capacity, and findings were limited to one athlete's experiences. Specifically, the female athlete experiencing burnout in this single case study shared that the intervention allowed her to have a greater awareness of her thoughts, behaviours, and body sensations, and to experience fewer negative emotional states. This suggests that a feel-based, self-regulation intervention fostering self-awareness may be beneficial for athletes experiencing burnout. Given the calls for developing and examining longitudinal interventions designed to cope with and reduce burnout symptoms (Cresswell & Eklund, 2007; Gustasson et al., 2011) and the promising findings from studies summarized above, interventions nurturing awareness and self-regulation capacity in burned out athletes warrant investigation.

Purpose of the Study

The purpose of the present study was to investigate the experiences of four student-athletes reporting symptoms of burnout. Through their story, we aimed to address (a) how they developed their self-regulation capacity over the course of the season, and (b) the strategies they used to influence their experiences of stress, burnout, and well-being.

Method

Paradigm and Methodological Approach

This study was guided by the participatory paradigm, which rests on the fundamental principles that individuals are capable of interpreting and understanding personal behaviors, and the personal values of both the participants and researcher guide the research process (Reason & Riley, 2008). Given the reciprocal influence exerted by both parties, collaboration throughout the study was key (Reason & Riley, 2008). While the feel-based, person-centered interventions

implemented in this study allowed the participants to be active members in the research process, the trained researcher (i.e., first author) who facilitated all of the interventions and analyzed the data played an important role in nurturing change and reflection (Reason & Riley, 2008).

Congruent with the participatory paradigm, a multiple case study approach was used as it offers the opportunity to examine multifaceted and dynamic experiences (Yin, 2003). Due to the individualized and comprehensive nature of the season-long, feel-based, self-regulation interventions, this approach was deemed the most appropriate to gain an in-depth understanding of each student-athlete's burnout experiences and to capture the complex changes occurring throughout the interventions. It was then fitting to create narratives to chronologically convey the participant's process (Smith & Sparkes, 2009).

Participants

Eight undergraduate students participating in the Canadian Interuniversity Sport (CIS) system at two Canadian universities took part in the study. They met the selection criteria of being full-time students and scoring at least 3.0 or higher on the physical and emotional exhaustion and reduced accomplishment subscales of the Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001), which are the two most predominant dimensions in the early phases of burnout (Cresswell & Eklund, 2006; Goodger et al., 2007; Gustafsson et al., 2008). Given the case study approach used in this study, the following four cases were selected out of the eight because they were different from one another and represented different sports and both genders: a male hockey player, a male swimmer, a female basketball player, and a female fencer.

Procedure

Recruitment. Coaches from two local universities were contacted during the first week of their athletic season to inform them of the study and gain access to potential student-athletes.

In the following two to three weeks (early October), the study was discussed in person with several interested participants and those agreeing to partake in the study signed the consent form and completed the ABQ and a brief demographic questionnaire. Of the 145 student-athletes who completed the entire ABQ, 15 met the selection criteria and had checked a box in the consent form expressing interest in taking part in the intervention. Participants were contacted based on the order of burnout scores from highest to lowest. While the first seven agreed to participate, the eighth one declined after learning more about the intervention requirements, thus a ninth participant was contacted and accepted. Four of the eight student-athletes who partook in the intervention were included as cases in this inquiry. To answer the research question, based on a maximal variation approach, the cases were selected to provide an account of a diversity of experiences question (Cohen & Crabtree, 2006).

Intervention. The intervention consisted of a pre-intervention interview, the intervention itself, and a post-intervention interview. The pre-intervention interview was held approximately two weeks before the onset of the intervention. A semi-structured interview guide was used to accomplish the following goals: (a) get the second consent form signed by the student-athletes, (b) describe the intervention process, (c) establish a schedule for the intervention sessions and final post-intervention interview, (d) introduce important concepts (e.g., self-regulation, stress, burnout, well-being), (e) explore the participants' familiarity with these concepts, and (f) gain insight into their sport background as well as motivations and goals to participate in the intervention study.

Approximately two weeks later, the participants began the intervention, which consisted of multiple one-on-one bi-weekly sessions with the researcher that were audio-recorded and lasted between 40 and 60 minutes. The sessions spanned the rest of their athletic

season (until February or March) and given that some seasons lasted longer than others, the total number of sessions varied between seven and nine. The semi-structured intervention session guide used was developed based on the RPM (Callary & Durand-Bush, 2008) and the Cognitive-Affective Stress-Based Burnout Model (CASBBM; Smith, 1986). During each session, the student-athletes were asked to reflect on and share how they felt, what they thought, and how they behaved in relation to the personal goals and standards they set for themselves. They also discussed obstacles (e.g., stressors) that were preventing them from feeling the way they wanted as well as self-regulation strategies they identified and used to either prevent or cope with these obstacles. They talked about their levels of stress, burnout, and well-being and their capacity to self-regulate during the past two weeks. They also established strategic plans based on goals and priorities (e.g., demands) for the next two weeks and self-regulation strategies they could use to execute these plans (e.g., resources). Given that self-reflection was an integral component of the intervention, the athletes journaled in between sessions either by engaging in free writing or by completing worksheets, based on their preferences.

Approximately one month following their final intervention session, the student-athletes took part in a post-intervention interview that was audio-recorded and lasted about 60 minutes. A semi-structured interview guide was used to facilitate the discussion regarding their (a) views on the intervention process (e.g., content and frequency of sessions, journaling), (b) current levels of stress, burnout, well-being, and self-regulation capacity, and (c) overall experiences and lessons learned and how these would shape their future as student-athletes.

Data Analysis

Each audio recorded interview and intervention session was transcribed verbatim. The lead researcher first performed a deductive (i.e., based on RPM and CASBBM) and inductive

(i.e., new emerging themes) thematic analysis (Hsieh & Shannon, 2005) using Nvivo 10 software in order to organize the data and extract the main themes. Specifically, the main components within each of the RPM and CASBBM frameworks (e.g., demands, resources, appraisals, felt experiences, etc.) were entered into an initial coding tree. New and more detailed themes emerging from the participants' shared experiences were subsequently entered into the coding tree. Next, these themes with related chronological, emotional, and contextual experiences were regrouped in one document for each of the four cases selected for this study. The data were transformed into a coherent narrative using the participants' words as much as possible to convey their unique experiences throughout the intervention in an accurate and authentic manner (Smith & Sparkes, 2009). Through this process of construction, the lead researcher played the role of *storyteller* and elected to present the data in the form of first-person narratives in order to showcase the voices of Steve, Sophie, Cory, and Jennifer, all pseudonyms to protect the anonymity of participants.

Trustworthiness

To enhance trustworthiness, the lead researcher took part in a bracketing interview, kept a reflective journal, and had regular debrief meetings with her supervisor. In addition, the pre- and post-intervention interviews and the intervention itself were piloted with a university student-athlete who provided feedback regarding session content and delivery. In order to maintain a level of consistency and contextual integrity, all data were collected, transcribed, and coded by the lead researcher who was familiar with each participant's experiences (Rubin & Rubin, 2011). However, a sample of the data was also coded by two independent reviewers to verify the researcher's coding and interpretation, and acceptable inter-coder reliability was reached (83% and 87%, Lombard, Snyder-Duch, & Bracken, 2002). Lastly, all coded transcripts were sent back

to participants for verification and very few changes were suggested; these were implemented accordingly (Guba & Lincoln, 1994).

Results

The following narratives highlight the unique experiences of the four cases as they progressed through the intervention to alleviate stress and burnout symptoms, and achieve a greater sense of well-being. Furthermore, the narratives depict relevant self-regulation strategies as well as changes they perceived in their sport and academic performances. A summary of these narratives is provided in Table 1 so as to give a general profile of each case.

Steve, a Demotivated Third Year Hockey Player

Pre-intervention. As a third year veteran on the men's university hockey team, playing with the guys has been a crucial part of my university experience. I've been playing regular shifts but the fear of losing my spot to new recruits has been on my mind during the last couple of seasons. I feel pressure and expectations from the coach, spectators, and even myself, and I'm afraid to let someone down. I usually never get tired of playing hockey but last season, I felt drained and could not get ahead. I was overthinking, stressing about school, and I wasn't playing well. By the end of the year, I wasn't achieving my goals and I wasn't changing the game.

Early intervention. I moved out of my parents' home and I'm struggling to balance everything. I have to meet my scholarship requirements but I'm going out with the guys and scrambling to study and finish assignments at the last minute. At the rink, I'm struggling to bounce back from bad shifts, and I often feel like I don't belong or I'm not good enough. I'm feeling tired and frustrated with my performances and I'm not motivated to come to the rink every day. I would rather feel fast, powerful, confident, and focused, like no one can stop me on the ice. I also want to feel accepted by my teammates. I want to feel that same kind of focus and

Table 1

Profiles of the four case study participants

	Steve	Sophie	Cory	Jennifer
Personal characteristics	3 rd year hockey player; extrovert; procrastinator; self-critical	4 th year fencer; extrovert; personal history of depression; poor class attendance	1 st year swimmer; returned after two-year leave from sport; poor practice and class attendance	2 nd year basketball player; perfectionist; insecure
Perceived stressors	Academic demands; expectations (coach, self); funding; injuries; substance use (alcohol)	Unsupportive and abusive coach; funding; injuries and illnesses; social media; substance use (alcohol)	Academic demands; expectations (coach, self, teammates); friendships	Academic demands; expectations (self) and criticism (coach); injury; restricted playing time; scheduling conflicts
Undesired felt experiences	Disappointed; drained; frustrated; worried	Distracted; frustrated; out of control	Disappointed; distracted; tired; unmotivated	Frustrated; nervous; resentful; tired; weak
Desired felt experiences	Accepted; confident; fast; focused; powerful	Calm; confident; in control; strong	Confident; in control; organized; passionate; smooth	Calm; confident; energized; organized; strong; motivated
Self-regulation strategies	Communicate thoughts / feelings; focus on controllable; journal; set goals; make to-do lists	Use cue words; journal; control alcohol use; reduce use of social media; make to-do lists	Use cue words; eat healthy; focus on controllable; set goals; make to-do lists; visualize; sleep	Accept mistakes; communicate thoughts / feelings; use positive affirmations, set goals
Outcomes	Increased awareness; confidence; optimism; organization	Increased empowerment; motivation; physical health; productivity	Increased confidence; happiness; motivation; satisfaction	Increased energy; motivation; optimism; productivity

confidence in school too. Overall, I'm kind of aware of how I feel and how I would rather feel but I don't know how to change it and I'm not that confident that I can.

I'm learning to put several strategies in place to overcome various challenges. I'm injured so I started setting small goals for every shift with my injury in mind and I'm trying to use my frustration to fuel my efforts on the ice. I'm also setting realistic goals off the ice by writing to-do-lists and this is helpful. I wasn't sure about this journaling process but I'm tracking what I do and how I feel throughout the day and after a couple of weeks, I see that my goals are allowing me to simplify the game, stay calm, and feel stronger. I'm playing some of the best hockey I've played in a while and my coaches and teammates are giving me positive feedback and boosting my confidence. While I feel like my well-being is improving, I still struggle to make the right choices off the ice. I show up at the rink hungover and hand in assignments late. All this is stressing me out. To make the right choices, I have to shift my thoughts from "I want or hope to change" to "I will change".

Mid-intervention. The sessions are helping me to be more aware of how I'm feeling. Although there is still room for improvement, I'm respecting the strategies I'm putting in place. I'm making a study schedule and sticking to it, going to the library to avoid distractions, and following my pre-game routine for hockey. I'm also trying to communicate the way I feel with others, especially my ex-girlfriend and coach because we ran into conflicts. My grades are improving and overall, hockey is going well. What's interesting is that I'm more self-aware but this is like a double edged sword because if I don't feel the way I want, sometimes I start to worry. Like for one game in particular, I walked into the arena and asked myself how I was feeling. When I realized that I felt tired and sluggish, I started to doubt my ability to perform.

Despite following my pre-game routine and setting a goal, I doubted myself and played a terrible game. I'm now reflecting on this in my journal.

Late intervention. I'm much more committed to changing my behaviours and I now realize that this requires more than just awareness. Nonetheless, I've had a few rough weeks because I have more courses this semester and I feel the pressure of going into the playoffs. I'm struggling with a few assignments so I'm questioning if I'm in the right program. Also, my coaches took me off the penalty kill line because I've been responsible for several goals. While I'm angry, I'm using this to prove to myself that I can do better. I'm going over the strategies I put in place earlier this season and I'm going back to setting a small, realistic goal for each shift. I'm focusing on the stressors that are within my control and journaling more often. I'm committed to staying on top of my school work. I'm working hard and now that playoffs are here, I'm feeling energized and I'm playing with more intensity and focus.

Post-intervention. I look back on the intervention and see that it allowed me to feel less stressed and burned out. I'm more aware of how I'm feeling when I'm on the bench during a game and I process things better. I also think things through rather than worry about how I'm feeling. I still have a lot of assignments to finish but I have a timeline and feel much more motivated and confident to get things done. Thinking back, I realize that I had low expectations at the beginning of the intervention. I definitely underestimated myself but after every meeting, I felt pretty good and I learned key things that stayed with me. I liked it and I am glad I did it.

Sophie, a Veteran Fencer in Need of Goals

Pre-intervention. Last year, I had to take a break during the season. I didn't feel supported by my coach, which caused me to resent fencing and everyone involved in it. I kept telling myself I would make the next practice but I didn't go for two months. I got help from a

counsellor and was diagnosed with depression shortly after that. I took a break from the sport and with support from friends and family, I'm back this season. I'm now in my fourth year of university and fencing takes up most of my time. I don't like school, I'm the worst student ever. I rarely do readings, skip most classes, and leave projects to the last minute. Yet I keep getting A's and B's so nothing has been driving me to change these poor habits.

Early intervention. I'm struggling to overcome an injury and I'm feeling frustrated and distracted at practice. My coach is not giving me a lot of attention so I'm getting help from a new coach at a club in the city and I'm noticing a lot of improvement. However, I realize that this new coach is manipulative and abusive so I quickly leave the club feeling discouraged, confused, and most of all, used. I'm still skipping classes and I'm partying almost every weekend, drinking until I feel out of control, which is humiliating. I want to change to gain more control so I'm taking advantage of this intervention. I want to feel stronger, more powerful, and confident when fencing. I want to stay focused and to do this, I know I have to remain calm and stable. I use cue words and I breathe when I get frustrated or too excited. When drinking with friends, I check in after every drink to see how I'm feeling because I want to feel in control. I reported the coach's abusive actions to the club, so I feel empowered. I'm trying to dissociate myself from these negative experiences but I'm still distracted at school and I'm falling behind. My main focus is to simplify my life, drop some courses, and take baby steps every day by writing short to-do lists. I'm drawing strength from my family and I shared my experiences with my university coach who is now offering great support. I'm writing in a journal, which helps me to notice and understand how I feel and provides a sense of comfort and relief.

Mid-intervention. I'm more aware of what makes me feel the way I want. For example, at fencing, I'm increasing the intensity of my warm-up to feel focused and I'm learning to reset

in order to detect and correct technical errors. I'm also disconnecting from social media to get school work and household chores done and I feel more accomplished. I'm focusing on being present in the moment and on drinking responsibly when spending time with friends and family. My well-being improved so my counsellor approved that I stop taking anti-depressants, which allows me to feel more energized. The intervention is teaching me to let go of stressors I can't control and to take care of myself. Despite these positive changes, I still struggle with physical injuries and I have to take breaks from fencing here and there. Because I dropped classes, I'm not eligible for financial assistance, which makes it difficult to pay grocery bills and rent. While I feel more motivated at fencing, I'm not interested in attending classes. To try to overcome this, I'm focusing on small goals and accomplishments and I chart how I feel throughout the day.

End of intervention. My physical health is better and the daily hassles I face seem less stressful because I focus on the small daily goals I set for myself. I felt prepared and focused during most bouts at provincials and nationals and finished feeling very content with my performances and motivated to continue training. I'm behind in my classes again but I'm not that concerned because my focus is on fencing. I'm feeling very self-aware and in control, mainly because of the journaling. Going back to read past journal entries allows me to rationalize and prioritize various facets of my life.

Post-intervention. My level of sport burnout really decreased but my motivation to attend classes never improved. So I decided to drop classes that did not interest me this term and to not come back to school full-time next year. All of this made me realize that I'm not enjoying school and my academic expectations are unrealistic. Admitting this has freed me to see things more clearly and to better enjoy fencing and other aspects of my life. The intervention helped me change my outlook on life and to find solutions that work for me and my well-being. A year ago,

I never sat and thought about how I was feeling. Now I check in several times per day and realize there were so many things I was missing. I will continue to use strategies to feel content.

Cory, a Disorganized Rookie on the Swim Team

Pre-intervention. I left swimming at the age of 12 because I was burned out as a result of the intense training schedule. Two years ago, I came back to the sport ready to give it another shot but feared that those negative feelings would come creeping back. My desire to race and feel part of a team drove me to swim at the university level. As a first year student, I need some adjustment as I'm noticing that everything is more challenging.

Early intervention. After the first month of school, I'm feeling very stressed. In the pool, I'm distracted, physically tired and sore from training. While I feel happy during races, I'm repeatedly disappointed as I continue to miss the cut-off time required to qualify for upcoming meets. Though I appreciate the support of my teammates and coach, I fear not being able to live up to their expectations. I want to achieve that easy speed in the pool, that effortless feeling of going fast and smooth without struggling. To do this, I'm starting to set small, controllable goals for each segment of the race, each with its own cue word, and I'm sharing these with my coach. At school, I'm not motivated and miss several classes per week because I prefer to stay home and sleep. I'm side-tracked by social media and struggle to finish my assignments on time, and I'm getting more concerned about my grades. I want to feel more organized, confident, and passionate about what I'm learning so I'm making a to-do-list every night before going to bed. I'm starting to become more aware of how I'm feeling and what I need to do in the pool to feel the way I want as a result of completing my journal. I'm getting better at letting go of things I can't control and my stress seems to be decreasing. However, as I'm becoming more aware, I spend more time worrying when things are not going my way.

Mid-intervention. My performances in the pool are really improving and I qualified for nationals. My lack of motivation and feelings of burnout are improving. I'm consistently setting small goals and using several cue words to stay focused. I'm also setting aside 15 minutes prior to every race to visualize and center myself to feel smooth during my warm-up and fast during the race. While I used to view practice as a chore, now I look at it as an opportunity to improve, to get in shape, and to be with my friends. I feel reassured that the hard work is paying off. I also feel like I'm getting the hang of university. Most days, I'm eating well and respecting my bed time. I'm updating my calendar and getting my assignments done on time. I realize I need to make changes to my social life. By partying until all hours of the night, I miss some Saturday morning practices and I regret this after. I want to feel more in control so I'm setting a curfew and checking in to see when I should stop drinking when I'm out with my friends.

End of intervention. I'm feeling better and in control of how I feel. I'm excited and motivated for the final competitions as I've been setting personal best times race after race. At school, I'm much more organized. I'm handing in assignments on time or early, I attend classes, and I'm staying on top of my readings. I feel stressed though because of nationals coming up and also pressure to succeed. I also need to find a summer job but I'm focusing on what I can control and setting small achievable goals, which is helping me stay confident. I stopped journaling and instead I reflect and manage how I feel in the moment throughout the day. Overall, I feel energized, I have a positive outlook on life and I'm happy. I am viewing university as a choice rather than an obligation. I want to be here. I want to swim.

Post-intervention. Looking back on the season and the intervention, I feel happy and self-aware. Although I feel physically drained because of training, I'm content knowing that I'll be leaving it all out there in my final championship and feel confident that the two weeks of

recovery after this will allow me to reset. I'm aware that the months of training leading up to another season will be challenging but I'm determined to pace myself and set new goals in order to feel excited and have a purpose when swimming. Checking in, accepting things that are out of my control, and prioritizing what I need to accomplish throughout the day allows me to feel organized and find a balance between sport and school. At the beginning of the season, I felt overworked and stretched too thin but in the end, I learned the importance of being in control and confident that I can change the way I feel. This allows me to keep enjoying life as a university student and to prevent stress and burnout from building up.

Jennifer, a Distressed Second Year Basketball Player

Pre-intervention. I'm in my second season of university basketball and it feels like business. There is more yelling and more stress than ever and it's taking over every aspect of my life. I feel as though I don't have a chance to do well in school because I spend so much time in the gym. I feel tired, depressed and I'm counting the hours, dreading to have to make my way to the next practice. It's mentally exhausting to have to do the same thing over and over again. With only two weeks off between seasons, I resent the fact that I can't travel and spend more time with my friends and family. While I think of quitting, I have never done anything but play basketball so I fear what my life would be without it. My stress mostly stems from my coach's expectations and the pressure he puts on me. I feel like he's always disappointed in me. He calls me lazy and tells me that I won't be successful in life. Even though I always thought I was a hard worker, after hearing his criticisms over and over again, I wonder if he's right.

Early intervention. I feel physically tired and mentally weak. My play is inconsistent and as a result, I feel nervous coming off the bench. Even when I play well, I worry about my next mistake and feel that my performances are never good enough. Instead, I want to feel

physically energized and strong so I'm starting to prioritize my time to get more sleep and eat a more balanced diet. I also want to feel calm, content, and confident and to do so, I'm starting to study the pre-game playbooks and to visualize my performances. I'm reminding myself of my strengths and abilities after a mistake and I'm setting one goal per shift and re-adjusting as the game progresses. While I enjoy learning in classes, I struggle to find a balance between basketball and school, and often choose to neglect the latter. I want to feel more organized so I'm taking a proactive approach and prioritizing my assignments.

I feel more energized as the weeks progress but I'm struggling with a muscular strain, which affects my performance and prevents me from feeling strong. As my coach pressures me to play through the pain, I'm growing frustrated, even angry. I struggle to buy into his win at all cost philosophy and his criticisms and threats to cut me from the team are stressing me out. In order to cope and regain confidence, I'm trying to identify the things that I'm doing well after every practice and game, set personal goals, and reflect on my own values and reasons for playing. I'm also prioritizing my time away from the court to complete class readings and prepare study notes, which decreases my level of stress. Even though my journaling is inconsistent, I feel it helps me understand how I'm feeling so I want to complete more entries.

Mid-intervention. I'm meeting the deadlines in my calendar and feel some weight slowly being lifted off my shoulders. I'm feeling less burned out and have more energy on a daily basis. I want to continue feeling organized and confident so I'm staying on top of my school work this semester. Even if I'm much more self-aware, I continue to struggle controlling how I feel on the court and succumb to the fear-driven culture the coach has instilled within our team. He yells and threatens to bench me if I turn the ball over, which frustrates me and makes me want to cry. To cope, I want to change my perspective and view what he does as a challenge.

I talked to him to better understand my role even if I felt uneasy. I noticed that things started to take a positive turn. I'm learning that I want to feel faster and more confident on the court. I'm spending extra time in the gym and setting a schedule to increase my cardio training. Ironically, I'm working harder but I feel less tired. My awareness and ability to self-regulate is improving from mentally checking in throughout the day so I decided to stop journaling.

End of intervention. I'm feeling energized, rested, and productive. My school work is organized, I'm getting the rest I need, and I feel much less stressed. I'm running three times per week to get in better shape and feel excited to go to practice. However, with playoffs, my playing time is reduced and although I would have been relieved to sit earlier in the season, now I feel bored and I want to play. I'm focusing on what I can control though, like supporting my teammates. I'm staying positive and visualizing while I'm on the bench so that I'm mentally ready and confident when I have to step onto the court. Despite some improvement, my relationship with my coach is still challenging. Earlier in the year, I wondered why I didn't quit between seasons when I had the chance but now I feel empowered and have a much more positive outlook on school and basketball.

Post-intervention. I'm still optimistic now that the season is over and feel much less stressed and burned out than at the beginning of year. I continue to run and train, and I don't see my coach as frequently. Thinking back to his criticisms and negativity, I accept that he does not truly know who I really am. I learned that it's important to be happy with what I'm doing and I now understand that I have the ability to make this happen. While I still don't love school, the intervention allowed me to become much more organized and to achieve the grades I wanted.

Discussion

This study highlights how four student-athletes' stress and burnout experiences evolved throughout a competitive season as they learned to self-regulate. It showcases the strategies they used to make positive changes and improve their well-being and performance. Although the process comprised several 'ups' and 'downs' due to continuous challenges, these student-athletes learned to become more self-aware and to manage their thoughts, feelings, and actions in the face of adversity. These results are congruent with the increased self-regulation competence highlighted in previous studies in which the RPM was used as an intervention framework with healthy athletes and university students (Callary & Durand-Bush, 2008; Collins & Durand-Bush, 2010; Simon & Durand-Bush, 2009). Even if the student-athletes in the current study experienced distress and burnout, they were able to increase their consciousness through reflection during and between intervention sessions via journaling. Journaling was equally an instrumental component in the aforementioned studies and in a self-regulation intervention implemented with burned out coaches (Durand-Bush, McNeill, & Collins, 2015). As such, it appears that it should be promoted as a key aspect of future burnout interventions in sport.

When further examining the four cases' experiences, it is apparent that the CASBBM (Smith, 2006) and RPM (Callary & Durand-Bush, 2008) were useful guiding frameworks during the interventions. For example, the student-athletes learned to leverage their internal (e.g., skills, strengths) and external resources (e.g., parental support, friends), prioritize their demands (e.g., assignments, practices) to make them more manageable, and alter their cognitive appraisals of situations to perceive them more favourably (e.g., "I want to change my perspective and view what he does as a challenge"; Smith, 1986). On account of the preparation component of self-regulation (Callary & Durand-Bush, 2008; Zimmerman, 2000), the four cases also set realistic

and achievable goals for both sport and school contexts and established personally relevant plans and strategies to accomplish them. As Vohs and Baumeister (2004) would articulate it, this helped them to reduce discrepancies between their compromised and healthy selves.

Paying attention to their dual role of student and athlete and strategically implementing strategies to fulfill both of these roles was essential throughout the participants' intervention. For example, the student-athletes noted and employed strategies relevant for sport (e.g., visualize, train, use cue words, communicate with coaches) and school (e.g., make to-do lists, schedule study periods, attend rather than skip classes). Furthermore, some strategies were important for both contexts (e.g., set goals, prioritize activities, limit drinking, get adequate sleep). While each participant discussed using a distinct set of strategies to achieve desired experiences and outcomes, several were consistent with those reported in previous studies (e.g., cognitive restructuring, visualization, time management, communication; Gould, Finch, & Jackson, 1993; Jouper & Gustafsson, 2013). Overall, results suggest that a wide array of strategies and skills are required to effectively reduce stress and burnout.

An innovative finding was that while heightened awareness was important in the student-athletes' self-regulation efforts, this increased awareness contributed to additional stress when it pertained to negative thoughts and feelings. This occurred for three of the participants mainly in the early phases of the intervention when they lacked confidence to implement targeted strategies to manage their thoughts and feelings. However, anticipating and working through such obstacles and putting in place a plan to reconnect with the way they wanted to feel were important components of the intervention, as stipulated in the RPM (Callary & Durand-Bush, 2008). Durand-Bush and colleagues (2015) discussed that learning self-regulation skills is not a linear process and can create discomfort. Providing support and guidance through co-regulation

processes (e.g., discussion of journal entries, mutual goal setting) is important as it allows external resources (e.g., coaches, sport psychology consultants) to facilitate student-athletes' self-regulation and then help them shift toward independent regulation.

The person-centered approach that was used to implement each intervention was instrumental in this study as it allowed the student-athletes to respect their needs, interests, and preferences. As demonstrated in each narrative, the four student-athletes' experiences and intervention process varied. For instance, Jennifer attributed much of her negative experiences to the lack of support from her coach while Steve felt that his poor time management and amotivation contributed mostly to his negative states. This had an impact on the topics discussed during the intervention and the strategies put in place (e.g., communicate with coach, make to-do lists). This supports findings that burnout manifests itself in unique ways in athletes (Goodger et al., 2007; Gustafsson et al., 2007), thus a 'cookie-cutter' or a generic group approach should be avoided when assisting them.

With regards to stress and burnout symptoms, the way in which the student-athletes felt supports findings in the literature. Specifically, feelings related to fatigue, frustration, illness, injury, amotivation, and incompetence (Cresswell & Eklund, 2006; Goodger et al., 2007) were commonly reported by the participants. Similar to what Cresswell and Eklund (2006) found, feelings of inconsistency and doubt were described by Steve and Jennifer, whereas Sophie and Cory emphasized feelings of inattention and disappointment. With the intervention, however, the student-athletes learned how to recognize undesired or detrimental feelings and to change them into more facilitative ones. This demonstrates the importance of moving beyond reactions to situations as described in Smith's (1996) model, in order to proactively set preferred standards and goals and prioritize ways to achieve them (Zimmerman, 2000).

Many of the stressors perceived by the student-athletes have also been reported in literature. As found by Gould and Whitley (2009), the inability to balance sport and school was a common source of stress, particularly in the early phases of the intervention. Participants also worried about grades to maintain their eligibility status and scholarships. The risk of getting cut from the team created fear and doubt for Steve and Jennifer, a finding also reported by Cresswell and Eklund (2007). Furthermore, coaches were key sources of stress, which was addressed in past research (Gould et al., 1996; Gould & Whitley, 2009). Surprisingly, the two female student-athletes were particularly distressed by their coaches. For example, Jennifer felt suffocated by her lack of autonomy and the pressure and expectations exerted by her coach (Coakley, 1992; Gustafsson et al., 2008) while Sophie was troubled by one coach's lack of support and another coach's abusive behaviours. More research should be conducted to investigate the role of coaches in the stress and burnout experiences of female athletes. As postulated by Collins and Durand-Bush (2010), one way to do this would be to involve coaches in future burnout interventions so they can learn how to be resources rather than sources of stress for their athletes.

The trained researcher who delivered the interventions played a crucial role and influenced the student-athletes' experiences, which supports previous findings (Callary & Durand-Bush, 2008; Collins & Durand-Bush, 2010). In the early phases, she used an educational approach to help the student-athletes learn how to identify, monitor, and adapt the way they were feeling, thinking and behaving to meet their standards and goals. As the intervention progressed, however, she changed her role so that the student-athletes could become more self-directed, think for themselves, and draw inferences based on personal reflections, a phenomenon enacted via co-regulation processes (Hadwin, Jarvelä, and Miller, 2011; Zimmerman, 2000). As they became more adept and confident in their self-regulation efforts, the student-athletes decreased

journaling, opting to replace this with regular “mental check-ins”. This supports work by Knowles, Gilbourne, Borrie, and Nevill (2001) who argue that reflective techniques do not always have to involve writing. Rather than forcing traditional forms of journaling, engaging in reflection through oral communication may be the most beneficial in some cases. In the end, the four student-athletes shared that the individualized approach adopted and the trusting relationship they formed with the trained researcher significantly contributed to their positive experiences. Interestingly, although they felt overwhelmed as a result of stress and burnout, all of them had a 100% attendance rate. This demonstrates the potential benefits that this type of intervention may offer to committed student-athletes who are experiencing burnout and welcome additional support.

Notwithstanding the positive results emerging from this study, limitations must be acknowledged. First, due to the fact that athletes participated in different sports, the demands they faced and the length of their season varied. As such, it was challenging to compare each student-athlete’s personal experiences at various time points during the intervention. Also, while many benefits are derived from using an individual person-centered intervention approach, it does limit the number of participants who can take part in an intervention with one trained researcher in a given time period. Finally, although the student-athletes who participated in this study struggled, they were still engaged in their sport and motivated to change. Research involving interventions to alleviate burnout with those who have dropped out of sport are warranted to determine if similar positive outcomes would be obtained.

Conclusion

This study showed that university student-athletes experiencing stress and burnout symptoms can learn to regulate their thoughts, feelings, and actions by implementing a variety of

strategies tailored to meet the demands and adversity they face. Although many strategies were unique to each participant, common ones included setting goals, prioritizing tasks, managing time, and reappraising challenging situations. Each student-athlete's story depicted how improving self-regulation capacity required effort and conscious attention and was a demanding process in and of itself. However, ongoing commitment and support and increased self-efficacy throughout the intervention had a positive influence on the participants' experiences of stress, burnout, well-being, and performance. While being a university student-athlete can be stressful, athletes must learn to prioritize their activities, protect time for both their sport and school, and most importantly, take care of themselves. Coaches, friends, and families may not always be there or may not know how to nurture student-athletes' self-management skills. As such, mental performance consultants and/or academic mentors should provide training to ensure that student-athletes learn skills to remain healthy throughout their university and athletic career.

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Article 4

**The Dynamic Cognitive-Affective Stress-Based Burnout Model:
An Adapted Intervention Framework To Guide Research and Practice**

Nicole Dubuc-Charbonneau & Natalie Durand-Bush

University of Ottawa

Abstract

Smith's (1986) Cognitive-Affective Stress-Based Burnout Model (CASBBM) was the first model in which the athletic burnout process was conceptualized. Although the model has been widely used and referenced, it has seldom been integrated in intervention studies designed to alleviate stress and burnout. The purpose of this study was to examine the integration and adaptation of the CASBBM to facilitate positive changes in eight student-athletes participating in an individual, season-long, person-centered self-regulation intervention to alleviate stress and burnout symptoms. A deductive and inductive thematic analysis of the qualitative data stemming from the multiple interviews and intervention sessions was performed, which led to the creation of a comprehensive coding tree. The coding tree was then compared and contrasted with the components of the CASBBM. Results led to the creation of a revised version of the CASBBM, of which some components remained the same, others were adapted, and new components were put forth to account for the multitude of experiences, outcomes, and changes reported throughout the interventions. Bridging theory and practice, this adapted model can serve as a potential tool to prevent and alleviate stress and burnout symptoms in student-athletes.

Introduction

Within the culture of competitive sport, athletes have been exposed to a variety of demands and pressures that have led, in some cases, to negative repercussions such as burnout. Athlete burnout has been commonly defined as a syndrome characterized by emotional and physical exhaustion, reduced personal accomplishment, and sport devaluation (Raedeke & Smith, 2001). Several models or perspectives of burnout have been proposed over the years to explain the process of athlete burnout. However, Smith's (1986) CASBBM has been listed as the most widely cited in the sport burnout literature (Gustafsson, Hancock, & Côté, 2014).

Despite the increasing body of literature in the area of sport burnout, researchers have expressed the need for more intervention studies to better understand how to prevent and alleviate symptoms of burnout (Goodger, Gorely, Harwood, & Lavalley, 2007; Gustafsson, Kenttä, & Hassmén, 2011). These types of studies have been scarce, although one study showed the positive effect of using elements of Smith's (1986) CASBBM in a stress management training program to reduce negative thinking among volleyball players (Crocker, Alderman, & Smith, 1988). Moreover, Jouper and Gustafsson (2013) demonstrated the positive effects of conducting a mindfulness intervention with an athlete experiencing burnout, although the CASBBM was not used as a framework in this case study.

Gustafsson and colleagues (2014) argued that "it is of great importance to investigate the main theoretical models used in sport burnout" and "for the field [of sport burnout] to progress, there is a need for continued theory development and reflection" (p. 621). In line with the aforementioned gaps, the purpose of this study was to examine the integration and adaptation of the CASBBM in the context of multiple individual self-regulation interventions to facilitate positive changes in student-athletes experiencing burnout. It is anticipated that this study will

make a significant contribution to the literature as it involved documenting and expanding the use of a prominent framework of burnout in a series of applied interventions, hence furthering reflection and advancing knowledge regarding existing theory (Gustafsson et al., 2014).

The CASBBM

The CASBBM (Smith, 1986) emerged from Smith's (1985) original model of stress, a construct he defined as the result of an imbalance between athletes' perceived resources and demands. According to Smith (1986), the purpose of the CASBBM was to "incorporate the phenomenon of burnout as well as what is known about its antecedents and consequences within a cognitive-affective model of stress, to explore the implications of this model for preventing and coping with burnout, and to address a number of conceptual issues, methodological problems, and empirical questions concerning athletic burnout" (p.48). The CASBBM is comprised of four components (see Figure 1): (a) Situation, (b) Cognitive appraisal, (c) Physiological responses, and (d) Coping and Task behaviours. While Smith advocated that each component is influenced by athletes' personality and motivational attributes, he did not elaborate on these influences, therefore leaving these relationships somewhat unclear.

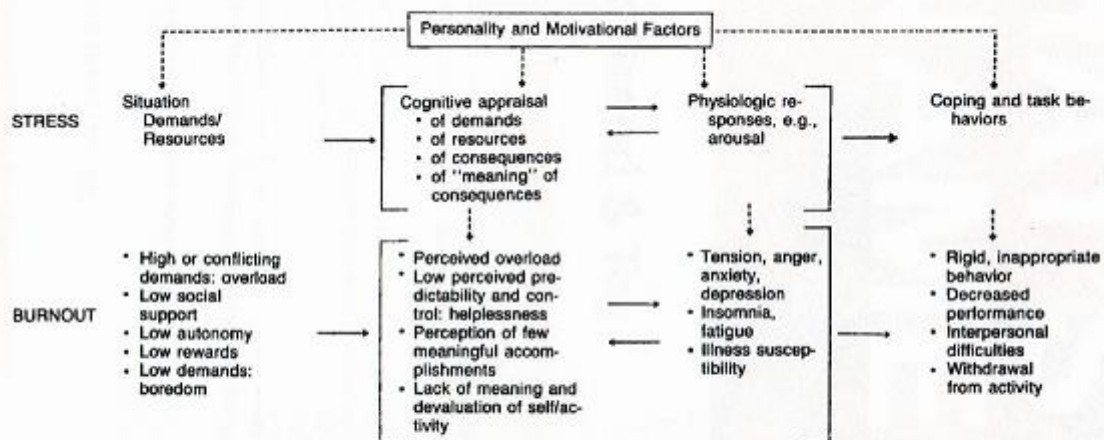


Figure 1 — A conceptual model showing the parallel relationships assumed to exist among situational, cognitive, physiologic, and behavioral components of stress and burnout. Individual differences in motivation and personality are assumed to influence all of the components.

The “Situation” component of the CASBBM refers to “interactions between environmental demands and personal and environmental resources” (Smith, 1986, p. 41). Smith (1986) stated that demands can be internal (e.g., personal goals) or external (e.g., pressure from coach, training schedules), however, he did not decipher between different types of resources from which athletes can draw to manage demands. One could argue that resources can be internal (e.g., skills) or external (e.g., social support, rewards). Athletes at risk of burnout face numerous or conflicting demands or have insufficient resources to meet these demands. Recognizing that this imbalance can be bi-directional, Smith added that stress can also result from a lack of demands and boredom.

Cognitive appraisal, the second component, highlights the importance of thought processes in the manifestation of stress and burnout. Ways in which individuals interpret similar situations vary. As such, it is athletes’ cognitive appraisal of demands, resources, consequences associated with an inability to meet demands, and the personal meaning attached to these consequences that dictate the level of stress they will experience (Smith, 1986). Appraisals such

as low perceived control, feelings of helplessness, overload, and lack of meaning or reduced accomplishment increase the risk of burnout (Smith, 1986).

Physiological responses represent the third component of the CASBBM (Smith, 1986). Smith postulated that chronic stress can result in feelings of tension, anxiety, anger, and fatigue as well as conditions such as depression. He outlined that emotions derived from physiological arousal can cause athletes to reappraise demand-resource imbalances and further impact physiological reactions and output behaviours. There is some discrepancy as Smith termed responses as physiological, yet many appear to have a cognitive and emotional dimension as well (e.g., anxiety). Thus the model does not appear to account for the multidimensional nature of various potential responses associated with burnout.

With regards to the fourth component of the CASBBM, Smith (1986) stated that individuals put forth various social and task-oriented behaviours in an attempt to cope with perceived stress. When burnout occurs as a result of chronic stress, these behaviours tend to be rigid, inappropriate, and lead to negative consequences such as reduced accomplishment in sport. If these consequences outweigh perceived rewards and resources, and alternative activities outside of sport are perceived as more valuable, athletes are likely to withdraw from sport altogether (Smith, 1986). Several elements of this component remain unclear. For example, while Smith referred to social and task-oriented behaviours, he did not provide examples of these nor did he clearly demonstrate how they influence burnout development. He spoke of consequences or outcomes of the burnout process (e.g., decreased performance, withdrawal), yet he did not distinguish between coping and outcomes.

Despite the aforementioned limitations, the CASBBM has driven many empirical studies in the field of athletic burnout, including the current one. It allowed researchers to confirm that

burnout is an outcome of chronic stress processes (Cresswell, 2009; Lemyre, Hall, & Roberts, 2008) and that elements of the CASBBM are reflected in the burnout experiences of competitive athletes. For example, a lack of social support (Cresswell, 2009; Gustafsson, Hassmén, Kenttä, & Johansson, 2008), low perceived control (Cresswell, 2009; Hodge, Lonsdale, & Ng, 2008), and perfectionism (Hill, Hall, Appleton & Kozub, 2009) can contribute to burnout. Negative responses and outcomes such as self-doubt (Cresswell & Eklund, 2006), fatigue (Cresswell & Eklund, 2007; Gustafsson et al., 2008), illness (Goodger et al., 2007), and social withdrawal (Goodger et al., 2007) can be a consequence of burnout. Lastly, not all athletes who burn out necessarily drop out of sport (Gustafsson et al., 2011).

The CASBBM as an Intervention Framework

Despite Smith's (1986) intention to explore the model's potential for preventing and coping with burnout, the CASBBM has not been formally used as an intervention framework to date. However, some elements incorporated within this model have been addressed in two intervention studies. First, coping skills aimed at altering cognitive appraisals were introduced in a training program conducted with 16 provincial level adolescent volleyball players. After completing the program, the participants reported less negative thinking and improved performance (Crocker et al., 1988). In the second study, a mindfulness intervention emphasizing cognitive appraisal was implemented to alleviate an athlete's burnout symptoms (Jouper & Gustafsson, 2013). The athlete increased her awareness of negative appraisals and altered these to more positive ones, which helped to alleviate burnout symptoms and improve performance. These two studies demonstrate the importance of targeting cognitive appraisal when coping with stress and burnout.

Smith (1986) stated that self-control skills could potentially reduce burnout and promote empowerment. However, this hypothesis has yet to be tested in real life settings. An intervention framework serving to empower athletes to develop self-control skills that could complement the use of the CASBBM in an intervention study is the Resonance Performance Model (RPM, Callary & Durand-Bush, 2008). Although not specifically designed to prevent or reduce athlete burnout, the RPM has been used to guide self-regulation interventions leading to positive changes in athlete well-being and performance (Callary & Durand-Bush, 2008; Collins & Durand-Bush, 2010). RPM-driven interventions lead athletes to reflect on how they want to feel in different situations and contexts (e.g., calm and rested as opposed to fatigued and stressed), develop cognitive and behavioural strategies to feel the way they want (e.g., have naps to promote recovery), anticipate and prepare for obstacles (e.g., an inflexible coach), and finally, develop strategies to reconnect with how they want to feel as necessary (e.g., do a yoga session).

Several links can be drawn between the CASBBM (Smith, 1986) and the RPM (Callary & Durand-Bush, 2008). Briefly, both prioritize the role of cognitive appraisal and the interaction between athletes' internal (e.g., thoughts, feelings, physical sensations, behavioral responses) and external (e.g., coaching and parental support) environment. However, the RPM gives precedence to how athletes feel, which is not overtly discussed in the CASBBM, even though emotions have been addressed in the stress and burnout literature (Lazarus & Folkman, 1984). Also, the self-regulatory and person-centered nature of RPM-based interventions provides individuals with a sense of empowerment (Callary & Durand-Bush, 2008), which Smith (1986) considers to be lacking in athletes experiencing burnout. However, he does not discuss ways to resolve this in the CASBBM, showing the complementary features of both models. Lastly, the CASBBM promotes the use of coping strategies in response to stressors. Similarly, the RPM emphasizes the

need to effectively react to obstacles by using revisiting strategies. Yet, it also promotes proactive behaviours by getting individuals to identify and implement preparation strategies (e.g., set goals, establish a schedule) as well as plan for obstacles.

Given the complementary links between the CASBBM and the RPM, these two models were used to conduct a multiple-phase intervention study with university student-athletes experiencing burnout symptoms. Results addressing the prevalence of burnout (Screening Phase, Dubuc-Charbonneau et al., 2014) and the impact of the individual feel-based, person-centered self-regulation interventions on student-athletes' stress, burnout, well-being, and self-regulation capacity (Intervention Phase, Dubuc-Charbonneau & Durand-Bush, 2015) have been published. The purpose of the current study was to investigate the integration and adaptation of the CASBBM to facilitate positive changes in self-regulation interventions designed to alleviate stress and burnout symptoms. With an applied perspective in mind, the aim was to demonstrate how the components of the CASBBM were defined and addressed in the interventions, how they led to positive outcomes in the student-athletes, and how the CASBBM was adapted based the data in order to optimize its use as an intervention framework.

Method

Participants

Eight university student-athletes from two Canadian universities took part in an individual, feel-based, person-centered, self-regulation intervention spanning the course of their athletic season. The four male and four female participants competed in hockey (n=4), swimming (n=2), fencing (n=1), and basketball (n=1). They were aged from 17 to 23 years and were completing their first (n=3), second (n=2), third (n=2), or fourth (n=1) year of playing eligibility. Furthermore, they were enrolled in a variety of academic programs (e.g., history,

geography, criminology) in the Faculty of Arts (n=7) and one of them (n=1) was registered in the Faculty of Sciences. In order to maintain anonymity, each participant was assigned a code represented by a letter (A to H). Moreover, intervention sessions and pre- and post-intervention interviews were identified using a number (e.g., H8). Grounded within the participatory paradigm, the researcher was involved in the development and delivery of the interventions. With specific graduate training and extensive experience consulting with university student-athletes, she had the requisite competencies to conduct the intervention study (see Dubuc-Charbonneau & Durand-Bush, 2015 for more details).

Data Collection

Screening phase. After obtaining approval from the Research Ethics Board at the two universities, the coaches were contacted during the first week of the new academic year to recruit student-athletes. Recruitment was limited to sports with competitive seasons spanning at least five months (i.e., hockey, swimming, volleyball, fencing, basketball) given the time requirements to complete the intervention phase of the study. The coaches of 10 teams allowed the researcher to meet with 147 student-athletes one month into the academic year. These participants completed a consent form, a demographic questionnaire, and the Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001). The goal was to assess the prevalence of burnout in this sample and to identify student-athletes who were, at the very least, in early stages of burnout and who were interested in taking part in the intervention phase. A total of 15 student-athletes met the selection criteria by scoring a minimum of 3.0 on the physical and emotional exhaustion and reduced accomplishment subscales (Cresswell & Eklund, 2007; Hodge et al., 2008) and checking a box on the consent form to participate in the intervention. Physical and emotional exhaustion and reduced accomplishment were included in the selection criteria as they are typically the first

symptoms to emerge in the burnout process (Cresswell & Eklund, 2006; Goodger et al., 2007). However, the researchers limited the sample to eight participants due to the extensive time required to deliver the individual season-long interventions. The participants' burnout scores were ranked from highest to lowest and students were contacted following this order. Out of the top eight who were contacted, only one athlete declined thus the ninth athlete on the list was invited and agreed to take part.

Intervention phase. Two to three weeks prior to commencing the intervention, the eight consenting student-athletes took part in an individual face-to-face pre-intervention interview lasting approximately 45 to 60 minutes. This allowed the researcher to get familiarized with the student-athletes' past sport experiences, build the foundation for a trusting relationship, and introduce the main intervention themes derived from the CASBBM and the RPM such as burnout, stress, well-being, and self-regulation. The researcher then met with each participant for an individual 40 to 60 minute intervention session approximately every two weeks over the course of the athletic season, for a total of seven to nine sessions depending on the sport. The researcher used a flexible intervention session guide informed by the CASBBM and RPM to facilitate the sessions. For example, through self-reflection and discussion, the student-athletes worked through themes from the CASBBM (i.e., perceived situational demands and resources, appraised imbalances, behavioural and emotional responses, coping strategies) and the RPM (i.e., desired felt experiences, preparation strategies, obstacles, revisiting strategies). Their general burnout, stress, well-being, self-regulation capacity, and athletic/academic performance levels and experiences were also regularly discussed. Furthermore, in order to nurture self-awareness, self-reflection, and self-monitoring, which are key components of self-regulation, the student-athletes kept a journal using their preferred format and timeline. Approximately one

month following their last intervention session, each of them participated in a 60-minute face-to-face interview allowing them to share their overall experiences with the intervention, any perceived changes, and feedback for future interventions and research. In order to quantitatively track changes in their levels of burnout, stress, well-being, and self-regulation capacity, they completed self-report measures before, during, and after the intervention. The analysis procedures and results associated with the quantitative data were previously published (Dubuc-Charbonneau & Durand-Bush, 2015).

Data Analysis

The qualitative data analysis was performed using the following steps (Hsieh & Shannon, 2005): (a) the data were transcribed verbatim, (b) the transcripts were broken into meaning units, which were coded and then deductively and inductively categorized based on different order themes depicted in a coding tree, (c) multiple coder checks were performed, (d) the data were re-coded and re-categorized, and the coding tree was revised as necessary, (e) the final coding tree and coded data were compared and contrasted with the components of the CASBBM, and a more comprehensive adapted version was created to guide future burnout interventions, and (f) this adapted version was verified by a panel of external reviewers.

Specifically, the researcher audio-taped and transcribed verbatim every interview and intervention session as the data were being collected. During this process, the researcher reflected on the data and made notes to document initial codes and themes emerging from the data and ways to conceptualize them. Using Nvivo 10 software, the researcher then formally coded the data by breaking down the transcripts into meaning units and coding them based on the content. The coded meaning units were categorized under different order themes that were deductively identified based on the research questions, the interview/intervention sessions

guides, and/or the CASBBM and RPM, or inductively identified based on the student-athletes' shared experiences. For instance, a first order theme titled "Cognitive Appraisal" was created based on the CASBBM and a second order theme titled "Well-Being" was created under a first order theme named "Outcomes", based on the pre-intervention interview guide. In terms of depth, the themes spanned seven orders, which were represented in a coding tree. The coding tree was revised three times as a result of multiple coder checks performed.

Multiple coder checks were carried out by the researcher as she regularly met with her supervisor in order to discuss the data and work through challenges and inconsistencies. Moreover, two doctoral students who were familiar with both the CASBBM and RPM models independently coded a representative sample of meaning units using the coding tree. Acceptable consistency was reached between the coding of the researcher and that of each student (83% and 87%, Lombard, Snyder-Duch, & Bracken, 2002). The researcher compared and exchanged ideas with the students through email and discussed these ideas with her supervisor until consensus was reached on discrepant codes. Following these checks, the researcher made final revisions to the coding tree and went through the entire database one last time to ensure that codes and themes reflected the most recent version of the coding tree.

The researcher and her supervisor then compared and contrasted the final coding tree with the components of the CASBBM in order to determine the comprehensiveness and applicability of the CASBBM to guide burnout interventions. Given that several relevant themes and changes emerging from the multiple interventions were not accounted for by the CASBBM, the aim was to create a version of the CASBBM that would do this. The analysis was exhaustive and involved creating three different versions of the model before it was finalized. The last step consisted of getting the adapted model evaluated by a panel of external reviewers, which

included an expert scholar in the area of sport burnout, one of the doctoral students who participated in the multiple coder check and had extensive knowledge in model development, and the student-athlete who took part in the pilot study and provided valuable feedback. Panel members reviewed the original and revised CASBBM and provided feedback regarding its breadth, depth, and usefulness to guide burnout interventions, which in turn led to final modifications. For example, the model was revised to distinguish between core and peripheral components. Also, the arrows between components were highlighted to show relationships between components.

Trustworthiness

In order to assure a high degree of trustworthiness in the study, the researcher participated in a bracketing interview prior to collecting data (Rolls & Relf, 2006). A four-week pilot study was also conducted with a university student-athlete, which allowed the researcher to test the data collection methods and protocol. The researcher also kept a reflective journal throughout the study to keep track of steps, insights, challenges, emerging thought processes, and lessons learned. These were discussed during regular debrief meetings with the supervisor. Lastly, the transcribed and coded transcripts were sent to the participants for verification. Only minor suggestions to content were made and changes were integrated in the database (Guba & Lincoln, 1994).

Results

An exhaustive analysis of the data stemming from the multiple interventions led us to propose adaptations to increase the breadth and applicability of the CASBBM as an intervention tool. Results are presented based on each component of the CASBBM (i.e., current and new) and they account for how the components were perceived and experienced by the student-athletes,

and how they related to each other. The adapted CASBBM is now titled “Dynamic Cognitive-Affective Stress-Based Burnout Model” (DCASBBM) to reflect positive and negative changes in the burnout process resulting from using the model as an intervention tool (see Figure 2). While two of the four existing components of the model remained intact (i.e., “Situation” and “Cognitive Appraisal”), two components were more broadly renamed. Specifically, the component “Physiological Responses” was retitled “Multidimensional Responses” in order to account for the different types of experiences the student-athletes reported throughout the interventions. Also, the “Coping and Task Behaviours” component was retitled “Coping” to characterize the various coping strategies the student-athletes implemented in response to challenges during the interventions, only some of which pertained to task-related behaviours. In terms of new components, an “Outcomes” component was created to represent the various consequences of the interventions reported by the student-athletes, which extended beyond those briefly mentioned in the original CASBBM. Also, a component named “Personal Characteristics” was added to explain the student-athletes’ various attributes that evolved throughout the interventions and impacted their experiences. The original personality and motivational factors discussed in the CASBBM were categorized under this new component. Finally, a component titled “Self-Regulation” was created in order to denote the multiple self-management strategies that the student-athletes proactively developed and used during the interventions to achieve their personal standards and goals. Sub-components (e.g., maladaptive/adaptive, undesired/desired) were included in the model to characterize the different types of experiences the student-athletes reported and will be subsequently defined and explained.

Figure 2 depicts not only the different components in the DCASBBM but also the relationships between these components. The original four components in Smith's CASBBM (i.e., Situation, Cognitive Appraisal, [Multidimensional] Responses, Coping) form the core of the adapted model and the relationships between these components have remained the same. For instance, situational factors influenced the student-athletes' cognitive appraisals, which in turn, impacted the multidimensional responses they experienced and their coping efforts. However, the bi-directional arrow between Cognitive Appraisal and Multidimensional Responses shows that the student-athletes often reappraised their responses, which then further impacted their responses to situations. The core of the model also comprises the Self-Regulation component, which was central throughout the interventions and impacted the other four core components. The continuous Self-regulation arrow situated at the top of these four components further emphasizes the ongoing and integral influence of self-regulation throughout the process. The model also includes the two peripheral components of Personal Characteristics and Outcomes and both have a bi-directional relationship with the core components of the model. As an example, the student-athletes' personal characteristics (e.g., self-confidence) influenced how they appraised situations and engaged in the intervention, and in turn, their multidimensional responses, coping, and self-regulation affected their personal characteristics (e.g., enhanced self-confidence). Of note, while the Outcomes component was indirectly influenced by Personal Characteristics, this same component, in turn, directly impacted Personal Characteristics, as indicated by the long arrow at the bottom of the model. For example, some student-athletes who noted an improvement in their sport performance (i.e., Outcome) reported increased intrinsic motivation to attend practices and a shift in their priorities (i.e., Personal Characteristics).

In order to provide a comprehensive account of the components and relationships within the DCASBBM, each component is now addressed following a linear fashion based on how components appear from left to right in the model. In addition, a definition of each component based on both the literature and the student-athletes' perceptions and experiences is provided in italics at the beginning of each section.

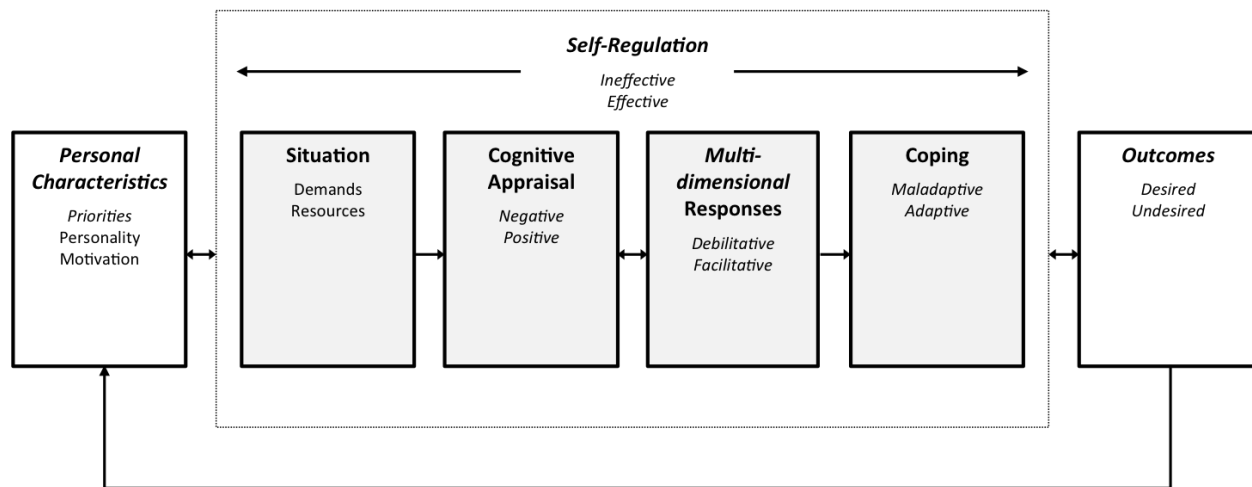


Figure 2. The Dynamic Cognitive-Affective Stress-Based Burnout Model (DCASBBM).

Adapted from the CASBBM (Smith, 1986). Changes are in italics.

Personal Characteristics

The student-athletes reported several personal characteristics that influenced their experiences throughout the intervention. In this context, personal characteristics were defined as *the combination of attributes* (e.g., qualities, traits, features, values, motivational beliefs) *that formed the student-athletes' individual nature*. Similar to what Smith (1986) articulated in his original model, personality and motivation characteristics were important in the current participants' burnout experiences. However, their priorities were also key characteristics.

Priorities. Priorities, which were defined as *something or someone regarded as more important than another*, were critical in the current study as the student-athletes were encouraged to reflect on what was important to them throughout the intervention. All of them shared that despite having many commitments, sport was one of the most important aspects of their life and it thus influenced many of their behaviours and choices: “Everything revolves around sport... There is just nothing else. It kind of structures everything” (H9). Although relatively high on all of the participants’ priority list, academia was often pushed aside due to time constraints. As a result of the intervention, many re-evaluated and set more realistic academic goals that coincided with the amount of time and effort they dedicated to their schoolwork. Taking time away from sport and school to be with friends or family was another priority for seven of the eight student-athletes that ultimately enhanced their well-being. Priorities changed throughout the intervention as participants learned what was most crucial to achieve desired outcomes (e.g., decrease stress and burnout symptoms, increase well-being, succeed in sport and school).

Personality. Personality was defined as *the combination of enduring qualities or characteristics making one student-athlete different from another (e.g., consistently think, feel, and behave a certain way in a particular situation)*. The two most commonly discussed personality characteristics influencing the participants’ burnout process and intervention experiences were perfectionism and laziness. For example, one student-athlete stated that he was known as “the guy who doesn’t work very hard on the team” (A1) and another shared he was “the ultimate shortcut taker in life and in practice” (D1). While being lazy was one of the main reasons some did not attend class, neglected homework, and skipped workouts, perfectionism is what led others to do the opposite. Participants learned to manage their personality characteristics throughout the intervention. For example, those with perfectionistic tendencies

learned to recognize when their thoughts were too rigid and to lower their expectations when they did not have sufficient resources to meet them.

Motivation. Motivation, which was defined as *the reason(s) and willingness to do something or behave a certain way*, was another important personal characteristic. Participants were driven by both intrinsic (e.g., passion and love for the sport, sense of identity, security, and competence) and extrinsic (e.g., bursaries, expectations from parents, teammates, and coaches) motives. However, they also experienced a lack of motivation due to early morning practices, cold weather, overwhelming assignment deadlines, and a lack of competitive events and playing time. In the early stages of the intervention, many were aware of this lack of motivation and the potential negative consequences of this. Yet, due to a perceived lack of control, they felt unable to change this, which resulted in poor class and practice attendance and a lack of effort. However, by increasing their self-regulation capacity and shifting to an internal locus of control, they gradually felt more driven, competent, and in charge, and developed more positive perceptions of situations, which favorably impacted their coping and performance outcomes.

Situation

As originally postulated by Smith (1986), the various situations in which the student-athletes engaged impacted their burnout experiences. Situation in this context was defined as *the combination of facts, conditions, and events that affected the student-athletes at a particular time and in a particular place (e.g., external and internal demands and resources)*. The student-athletes pursued favorable or avoided unfavorable situations during the intervention based on desired and undesired experiences and outcomes. They also learned to prioritize demands that were within their control, mobilize accessible resources, and perceive situations more positively.

Demands. Demands were defined as *external or internal needs or requests requiring attention and effort*. In general, external demands pertained to academia, sport, finances, living conditions, and relationships. Academic demands involving homework, exams, conflicting academic and sport schedules, course difficulty, and scholarship requirements had a significant impact on the student-athletes' daily experiences: "I have to get a scholarship...I have to make sure I get an A-" (H4). For those without financial assistance, the constant struggle of either finding or maintaining a part-time job was a challenge. Student-athletes also had to adjust to independent living and new and evolving relationships. All eight participants felt a tremendous amount of pressure from their parents, teammates, and coaches to succeed, and all four women had a significant conflict with their coach at one point during the intervention. Sporting demands were linked to university level and intra-team competition, restricted playing time, early morning practices, heightened training loads, and traveling. The intervention allowed the participants to identify and manage external demands, and sometimes this meant reducing them: "If I see that my schedule is getting hectic, I just tell my girlfriend that I don't think we are going to be hanging out as much this week because of the amount of schoolwork and my busy hockey schedule. I find that has really helped" (E8).

Internal demands generally pertained to personal expectations (e.g., standards, goals, roles, body image), illness, and injury. In some cases, internal demands were clearly influenced by external pressures: "My coach says you have to lose weight if you want to swim faster and now sometimes I will look in the mirror and say 'Wow, this doesn't look good on me and maybe I should lose weight. I feel like it is really getting to me'" (B4). During the intervention, the student-athletes were asked to identify their preferred standards (e.g., how they wanted to feel, think, and behave) based on what was realistic and within their control. This had a positive

impact on the internal demands they placed on themselves and how they perceived situations.

One athlete explained: “I have always known that school means a lot to me but I haven’t treated it like I valued it so now I have to act on that and I am looking forward to that clean slate” (H5).

Resources. Resources were defined as *external or internal assets used to function effectively or to achieve goals*. External resources pertained to academic, financial, medical, athletic, and social support, as well as rewards. For example, many student-athletes got assistance from academic advisors, classmates, teachers, and tutors to schedule and complete assignments. Financial support from parents helped to offset living and schooling costs while medical support enabled participants to prevent and recover from illness and injury. Coaches played an instrumental role by providing technical support, instruction, and motivation: “[The coach] is genuinely trying to make me better... He was trying to work with me to make me the 5th or 6th defenseman in the line-up” (E6). However, some participants reported insufficient support from their coach and felt they had “been ignored for years” (F1). Teammates, family, friends, and rewards (e.g., good grades, scholarships, increased playing time, recognition) also helped the student-athletes to fulfill their academic and sporting demands. For example, some student-athletes learned via the intervention the value of seeking advice from their teammates in order to better mentally and physically prepare for important competitions.

Participants also drew from internal resources they possessed. For example, sport-specific skills and knowledge were important resources allowing them to achieve goals and meet expectations. While the student-athletes were not aware of and able to effectively use many self-regulation strategies at the onset of the study, they increased their capacity to do so as the intervention progressed and, in turn, their self-regulation skills became important internal resources on which they could rely: “My teammates were drinking all day and I told myself, ‘No,

I am not doing it' so I went home. They called begging me to come out and I said no. I was happy with myself this morning'' (A8). Self-rewards were another form of internal resource for the student-athletes that included treating themselves to something enjoyable (e.g., eat junk food, use electronic device, spend time with loved ones) as a result of achieving a goal (e.g., completing a school assignment, working hard during practice).

Cognitive Appraisal

Cognitive appraisal was defined as *the act of judging or stating an opinion about a situation*. The student-athletes reported both negative and positive appraisals. A negative appraisal consisted of *the act of unfavorably judging a situation*, and conversely, a positive appraisal pertained to *favorably judging a situation*. The student-athletes negatively judged several situations (e.g., mid-term exams, coach feedback) and described imbalances in the early phases of the intervention as well as during peak training and academic periods. However, their increased and effective self-regulated efforts led them to positively evaluate situations, and to also re-appraise situations they initially perceived as negative.

Negative cognitive appraisal. In general, negative cognitive appraisals occurred when the student-athletes were in situations in which they perceived they did not have (a) adequate resources to meet demands, (b) control over the situation, (c) sufficient rewards to outweigh the costs of engaging in a task, and (d) luck on their side. Appraisals were impacted by increased awareness, particularly at the onset of the intervention when they were coming to terms with negative feelings and symptoms and a lack of coping strategies: "I will be stressed about whatever and I don't know how to change it, and that is a stress in itself right there" (H1). Student-athletes' appraisals were also negative when they were insufficiently challenged because their resources exceeded demands, which resulted in boredom: "If I am going to go to class and I

know exactly what the class is going to be like because I did the reading and it is exactly the textbook, then what is really the point?” (D7).

Positive cognitive appraisal. Positive appraisals typically occurred when the student-athletes were in situations in which they perceived they had (a) adequate resources to meet demands, (b) control over the situation, (c) sufficient rewards to outweigh the costs of engaging in a task, and (d) luck on their side. For many student-athletes, evaluating what was within their control was one of the first steps in developing effective self-regulatory strategies and alleviating stress and burnout symptoms. During initial intervention sessions, many did not feel capable of controlling what they thought, how they felt, and how they behaved. However, with time, they shifted their perceptions, enabling them to make positive appraisals or to re-appraise negative situations, which had a positive impact on their self-motivation beliefs: “At this point, I really need to grab the moment and continue to feel empowered by it and realize that what the coach did really isn’t my fault. I have done everything that I can to kind of counterbalance everything”. (F3) Participants also identified elements they could not change (e.g., behaviours of coaches, professors, competitors’ athletic performances) in order to “let go” and shift their focus to controllable elements: “I am a lot better now at being able to let go of the fact that I can’t control it so there is no point in stressing over it” (F9). Positive appraisals were also contingent upon rewards and luck, for example, one hockey player admitted: “I didn’t get anything to eat, I didn’t get enough sleep but [I’m lucky] I have still been playing above average” (H4).

Multidimensional Responses

Multidimensional responses were defined as *reactions resulting from cognitive appraisals of situations, characterized by multiple dimensions (e.g., physical/physiological, cognitive, emotional, social)*. The student-athletes experienced debilitating responses as a result

of negative cognitive appraisals (e.g., fatigue, irritability, anger, cynicism, detachment, sadness), however, these were not only physiological in nature - they reflected other dimensions as well. Furthermore, with increased self-regulation capacity and a positive shift in perceptions, participants reported a multitude of facilitative responses that were not originally described by Smith (1986). At times, student-athletes' responses, whether debilitating or facilitative, led to cognitive re-appraisal because they further evaluated situations and experiences, which in turn, impacted future multidimensional responses as well as coping and self-regulatory efforts.

Debilitative multidimensional responses. Defined as *depleting or detrimental reactions resulting from cognitive appraisals of situations*, the student-athletes' debilitating responses continuously changed throughout the intervention. From an emotional standpoint, they reported feeling angry, anxious, depressed, disappointed, discouraged, frustrated, sad, and scared. Physically, all of the student-athletes described feeling fatigued and drained but some also shared feeling lazy, injured, weak, hungover, and in pain: "It's just hard. I feel like he always wants us to be at practice but I can't always be there because my back hurts, I am tired, and there is a lot of stuff going on" (B1). Psychologically, many student-athletes reported feeling confused or conflicted due to competing demands or expectations that did not resonate with how they wanted to feel, think, and behave. Feeling distracted, helpless, incompetent, overwhelmed, regretful, and unconfident were other common psychological dimensions of their responses. From a social perspective, the student-athletes felt intimidated by their coaches and uncomfortable approaching them. Some mentioned feeling disconnected from teammates and embarrassed by subpar performances. However, as the student-athletes began to effectively self-regulate in the intervention, they began experiencing facilitative multidimensional responses.

Facilitative multidimensional response: Facilitative multidimensional responses were defined as *enabling or beneficial reactions resulting from cognitive appraisals of situations*. For example, the student-athletes perceived an increasing sense of empowerment, balance, and control throughout the intervention, leading them to more pleasant experiences: “I feel more confident. I just feel like things are happening the right way and it feels like I am not working as hard for an outcome” (E3). Participants reported feeling more competent, focused, efficient, and resourceful, which were indicative of more positive psychological dimensions of their experiences. From an emotional standpoint, many of them felt more happy and excited to take the next steps: “I go to practice happier now because I am motivated and feel like it makes a difference” (D5). Physically, student-athletes reported feeling more healthy and strong and from a social perspective, they felt more connected to those surrounding them. One hockey player provided several examples of the positive shift in the responses he was experiencing as the season and intervention progressed. He went from “feeling more awake and ready for practice” (A4), to “more creative” (A5), to “feeling confident and playing [his] best hockey” (A8).

Coping

Coping was defined as *efforts deployed to manage difficult or challenging situations* (e.g., those that were negatively appraised and generated debilitating responses). The student-athletes reported both maladaptive and adaptive coping strategies. Maladaptive coping referred to *inadequate or unsatisfactory efforts to use internal and/or external resources and strategies to overcome difficult situations* whereas adaptive coping was characterized by *adequate or satisfactory efforts to use internal and/or external resources and strategies to overcome difficult situations*. During the early phases of the intervention and intermittently as it progressed, the participants exhibited maladaptive coping behaviours, which led to undesired outcomes (e.g.,

increased stress). In the later phases of the intervention, however, many student-athletes were able to implement adaptive coping strategies, which led to more desirable outcomes (e.g., higher quality performance).

Maladaptive coping. Student-athletes' efforts that were characterized as inadequate or unsatisfactory included ruminating, making inappropriate excuses for undesirable responses, avoiding stressful situations altogether, giving up, and procrastinating. Many student-athletes had a tendency to defer important obligations when feeling overwhelmed, even though this further increased their stress level and compromised their well-being. Although infrequent, some student-athletes cried or lost their temper uncontrollably. In conflict situations, some complied with other individuals despite experiencing dissonance, while others withdrew: "This situation with my coach is stressful and is affecting my schoolwork and friendships. I am holed up in my apartment all the time. I have not been talking with my friends and teammates as much as I usually do, so that has been really hard to deal with" (F3). As the intervention progressed, however, the student-athletes engaged in more adaptive coping.

Adaptive coping. Student-athletes' efforts reported as adequate or satisfactory included accepting challenging situations that were out of their control, changing perspectives, blocking irrelevant information, focusing on the present and on controllable factors, reflecting on difficult situations, setting goals, visualizing, and engaging in positive self-talk: "I was stressed about of the things that were coming up and then I just thought about it and told myself, 'Ok, just get organized, calm down and start'"(C4). Other useful coping strategies involved communicating effectively with others, spending time with loved ones, removing oneself from confrontational or uncomfortable interactions, making others laugh to make light of unpleasant situations, as well as changing classes, academic programs, or accommodations. Furthermore, going for a run or to

the gym, getting adequate sleep, and eating nutritious meals helped to overcome stressful situations: “I was noticing from the journals that I felt bad in the morning so I decided that I would try and get more sleep and actually eat breakfast before coming to the rink, which I am doing now” (A6).

Some of the strategies the student-athletes used to successfully cope with difficult situations were sometimes the same as those employed to self-regulate on a daily basis. Nonetheless, coping and self-regulation efforts were distinguished by the type and timing of student-athletes’ efforts. Specifically, coping efforts were *reactive* and deployed after encountering adversity to decrease debilitating multidimensional responses. On the other hand, self-regulation efforts were *proactive and/or preventative* and were deployed as often as possible in normal day-to-day situations to achieve personal standards and goals (see below).

Self-Regulation

Self-regulation was defined as *efforts to plan, control, evaluate, and adapt thoughts, feelings, and actions in order to achieve desired standards and goals in changing/evolving situations*. As the student-athletes progressed through the intervention, they exhibited both effective and ineffective self-regulation. Ineffective self-regulation pertained to *efforts that came up short of meeting desired standards and goals* whereas effective self-regulation reflected *efforts that led to meeting desired standards and goals*. While Smith’s (1986) model solely focused on coping as a reaction to negative experiences, the adapted model also accounts for student-athletes’ proactive attempts to learn, grow, and self-actualize (e.g., achieve their full potential).

Ineffective self-regulation. In the process of learning about themselves and their environment (e.g., increasing awareness of personal characteristics, situations, cognitive

appraisals, multidimensional responses) and implementing strategies to self-manage, the student-athletes were driven by past experiences and trial and error. As in all learning situations, they were thus sometimes ineffective. For example, some ‘slipped’ and had an extra drink at a party, ‘crammed to study’ at the last minute for an exam, failed to manage intense emotions during competition, or ‘skipped’ class: “I was not happy after I missed class this morning but I tried to turn it around and tell myself, ‘Look, I have been doing well all week, it is just one class. I can do it next week’” (G6). However, as a result of ongoing efforts over an entire athletic season, the student-athletes also reported effective self-regulation.

Effective self-regulation. Effective self-regulation involved using strategies to engage in planning (e.g., set goals, manage time, budget, prepare nutritious meal), self-control (e.g., focus, engage in positive self-talk, visualize, monitor oneself, communicate, restrict alcohol intake, engage in high quality physical training, get adequate sleep), and self-reflection (e.g., make sound attributions, draw lessons, derive self-satisfaction). Small accomplishments (e.g., feeling the way they wanted, successfully executing their daily plan by respecting their agenda, thinking positively) fuelled their belief and desire to continue learning and growing: “I feel a lot more empowered. I haven’t been going out as often, which I feel good about because I am not spending money I don’t have. I am spending more time cleaning my apartment and doing school projects, which I feel good about” (F4).

Outcomes

Outcomes were defined as *consequences resulting from student-athletes’ experiences, influenced by personal characteristics, situations, cognitive appraisals, multidimensional responses, coping, and self-regulation*. The student-athletes discussed both negative and positive consequences as they progressed through the intervention. Undesired outcomes pertained to

negative consequences requiring change or improvement, while desired outcomes reflected positive consequences worth maintaining.

Undesired outcomes. In the early phases of the intervention, many student-athletes reported negative consequences such as decreased academic and athletic performance: “I am not doing well in school and then I sit there and try to think maybe I will do well in swimming but I just can’t seem to do that either (B1). They also experienced low well-being (e.g., lack of purpose, self-acceptance, and autonomy) and elevated stress and burnout symptoms (e.g., high anxiety and exhaustion), and considered withdrawing from sport: “The stress, mentally and physically, is just killing me... I don’t even think I want to play hockey after this year” (A1). However, the student-athletes also conveyed positive consequences as a result of participating in the intervention.

Desired outcomes. Desired outcomes included enhanced performance (e.g., more consistent attendance, effort, and play) and well-being (e.g., positive outlook, increased self-acceptance and energy), particularly in the latter part of their season. Alleviated stress and burnout symptoms were other positive outcomes:

I remember last year thinking I would never survive and even wondering at the beginning of this year why I didn’t quit when I had the chance... I just wasn’t enjoying basketball because I was so stressed and I think this is what was making me burned out. And then I de-stressed as the year went on and that took away from the burnout...I find it way more fun now. I want to go to practice. (E10)

Discussion

This study was conducted in response to the call to conduct intervention research addressing sport burnout (Goodger et al., 2007) and to further develop theoretical models of

burnout (Gustafsson et al., 2014). Results led to the DCASBBM, an adapted version of the CASBBM, which can serve as a potential tool for future research and practice.

The DCASBBM: An Intervention Model

This study involved integrating the CASBBM and the RPM to conduct multiple self-regulation interventions with university student-athletes reporting burnout symptoms. The data showed that although the student-athletes identified with Smith's (1986) CASBBM components, the model was not sufficient or comprehensive enough to account for changes in their burnout process as a result of the interventions. This provided the rationale for creating the DCASBBM, an adapted dynamic version reflecting their evolving personal characteristic, situations, cognitive appraisals, multidimensional responses, coping, self-regulation, and outcomes throughout the intervention. In line with past research (e.g., Gustafsson et al., 2008), the student-athletes' experiences in this study were highly individualized and their personal characteristics played an integral role in the burnout process. While perfectionism (Hill et al., 2009; Lemyre et al., 2008) and extrinsic forms of motivation (Lemyre et al., 2006) were discussed by some of the student-athletes, priorities linked to values, beliefs, goals, demands, and resources, for example, constituted key personal characteristics that guided all participants' thought processes and behaviours. Although the relationship between priorities and burnout in sport remains unclear, Altun (2002) showed that priorities influenced burnout levels in the nursing profession. The new "Personal Characteristics" component in the DCASBBM allows for the emergence of various attributes beyond motivation and personality that can influence student-athletes' idiographic experiences of stress and burnout.

The "Situation" component in the DCASBBM is the same as that in the CASBBM, though it was defined to encompass all elements of given situations that student-athletes

encountered, including external and internal demands and resources. For example, as suggested by Gould and Whitley (2009), the student-athletes in this study faced unique situations given their dual roles of students and athletes. These situations involved a multitude of demands related to succeeding in both school and sport, living independently, and establishing new social networks, to name a few. With regards to resources, social support and rewards were important external assets to the student-athletes, which corroborates the findings of Cresswell (2009) and Gustafsson and colleagues (2008). Then again, academic, financial, medical, and athletic support also emerged as vital in order to alleviate burnout symptoms and enrich self-actualization. In terms of internal resources, which were not distinguished from external ones in Smith's (1986) model, knowledge and skills were key situational elements that were intricately linked with "Personal Characteristics" and "Self-Regulation". Student-athletes increased their self-regulation skills as a result of the intervention, which supports the findings from previous self-regulation intervention studies conducted with athletes (e.g., Collins & Durand-Bush, 2010).

Findings of this study also authenticate the crucial role of cognitive appraisal in the burnout process (Cresswell & Eklund, 2007; Gustafsson et al., 2008; Smith, 1986). Cognitive appraisal was an important element of the intervention that was linked to the self-regulation sub-processes of self-awareness, self-control, and self-reflection (Zimmerman, 2000). By taking a proactive approach to nurturing personal characteristics and self-regulation skills and creating favorable situations (e.g., prioritizing demands, mobilizing external and internal resources), the student-athletes began to feel empowered and in control of their thoughts, feelings, and behaviours. In doing so, they learned to appraise situations differently and find new meaning, value, and purpose in sport and other aspects of their lives. Positive cognitive appraisals fuelled by perceived control and empowerment support studies revealing that autonomy and

competence, two basic needs from self-determination theory, are associated with lower levels of burnout (Hodge et al., 2008). As such, it was important to extend the definition of “Cognitive Appraisal” in the DCASBBM to account for both positive and negative evaluations of situations associated with evolving experiences of stress and burnout.

The scope of responses to cognitive appraisals was much broader in the current study than what was originally described by Smith (1986). Although the student-athletes reported several symptoms previously linked to burnout such as anger, anxiety, and fatigue (Smith, 1986), as well as reduced focus and self-doubt (Cresswell & Eklund, 2006), their exploration of felt experiences and shifts in appraisals throughout the intervention led them to discuss both debilitating and facilitative multidimensional responses. In line with the self-regulatory nature of the RPM and results of previous intervention studies (e.g., Callary & Durand-Bush, 2008; Collins & Durand-Bush, 2010), the student-athletes were guided to reflect on how they felt and how they ideally wanted to feel physically, emotionally, mentally, and socially in response to different situations, which changed as their appraisals evolved throughout the intervention. In contrast, physiological responses in Smith’s (1986) CASBBM were limited and confounded with what also seemed to be emotional and cognitive responses. The redefined “Multidimensional Responses” component in the DCASBBM now accounts for all dimensions and types of responses experienced as a result of positive and negative appraisals potentially generated in burnout interventions.

Coping resulting from negative appraisals of situations and debilitating response was evident in the findings. Similar to results of recent research on stress, burnout, and coping in university student-athletes (Cosh and Tully, 2015), the participants in the current study initially lacked strategies to manage difficult situations, which was likely one of their motives for

participating in the intervention. Such findings reaffirm the need for developing and implementing stress and burnout interventions with student-athletes (Goodger et al., 2007). In contrast to the broader component of “Coping and Task Behaviors” in Smith’s (1986) model, the “Coping” component in the DCASBBM was clarified and delimited to both maladaptive and adaptive efforts deployed in response to adverse situations. Indeed, the student-athletes discussed using several strategies when struggling, some of which were beneficial while others were not, which corroborates previous findings (Anshel & Delany, 2001). Furthermore, coping was distinguished from self-regulation in the DCASBBM, although a link between the two constructs was evident in both the present study and past research (Elliot, Thrash, & Murayama, 2011). This distinction helped to differentiate between coping strategies used by participants in order to reduce debilitating experiences at distinct points during the intervention when they encountered hardships (e.g., deep breathing after failing a test) and self-regulatory strategies they implemented in order to prepare or plan for a desired experience (e.g., daily relaxation breathing). As the intervention progressed, the athlete more proactively engaged in daily self-regulation efforts to generate positive experiences and meet personal standards (i.e., feel, think, and behave the way they wanted) and goals (e.g., complete a school assignment).

The “Self-Regulation” component is perhaps the most innovative addition in the DCASBBM. Not addressed in Smith’s (1986) CASBBM, results of this study suggest that self-regulation promoted positive changes in the other components of the DCASBBM (i.e., personal characteristics, situations, cognitive appraisals, multidimensional responses, coping, outcomes). Notwithstanding this, all of the student-athletes engaged in both ineffective and effective self-regulation during the intervention as it involved learning skills requiring considerable attention and effort. However, as the student-athletes increased their self-regulation effectiveness, positive

changes in experiences and outcomes emerged (see Dubuc-Charbonneau & Durand-Bush, 2015). This supports the relationship between self-regulation and desired outcomes depicted in other studies (e.g., Callary & Durand-Bush, 2008; Collins & Durand-Bush, 2010).

While some outcomes were discussed in Smith's (1986) CASBBM, the main one pertained to withdrawal, which was criticized by Kenttä and colleagues (2011) as it does not reflect the numerous outcomes that may result from the burnout process. In the adapted DCASBBM, "Outcomes" include both undesirable and desirable consequences emerging from changes in personal characteristics, situations, cognitive appraisals, multidimensional responses, and coping, all of which are impacted by self-regulation capacity. As reported by Dubuc-Charbonneau and Durand-Bush (2015), the current participants' stress and burnout levels decreased and their well-being levels increased as a result of partaking in the self-regulation interventions. For the DCASBBM to be of value in guiding future intervention studies, it is important that all outcomes be factored into student-athletes' evolving burnout experiences.

Implementing the DCASBBM: A Practical Guide

It was recommended that scholars invest greater effort into providing concrete guidelines to assist practitioners wishing to apply various theoretical frameworks in their practice (Collins & Durand-Bush, 2015). As such, the following steps are offered as a guide to use the DCASBBM as an intervention framework when working with student-athletes:

Pre-intervention:

- a) Identify athletes who are at risk of burnout via a self-report questionnaire, intake interview, and/or observations from coach, team members, family members, etc.;

- b) Ask athletes who are manifesting burnout symptoms to describe their current experiences in their sport to try to gain an understanding of what they are feeling and what their goals and challenges are (e.g., demands versus resources);
- c) Introduce key concepts such as stress, burnout, well-being, and self-regulation by having the athletes reflect on and share their understanding of each of these constructs, and provide explanations as necessary;
- d) Using the DCASBBM, give an overview of the burnout process and components/steps that are important in learning to manage symptoms, with examples and potential positive outcomes of this;
- e) Get athletes to list their priorities and discuss how these are linked to their current behaviours and experiences (e.g., health is a priority but not getting adequate amount of sleep, thus feeling drained and cannot focus);

Intervention (bi-weekly sessions can be informed by journal entries):

- f) Ask athletes to share how they have been feeling since the last session. Challenge them to explore different dimensions of how they felt (e.g., physically, mentally, emotionally, socially). Discuss the demands they faced, how they perceived and responded to them (e.g., did they perceive them as feasible or impossible, did they have the skills and resources to meet the demands), and what were the outcomes of this.
- g) In early sessions, have the athletes identify how they ideally want to feel in different situations / contexts, use key words to summarize this, and refer to these as *preferred standards*. Ask athletes to compare their preferred standards with how they currently

feel and discuss any perceived gaps. This may be challenging in the beginning but it should get easier as levels of self-awareness improve.

- h) Ask athletes to identify acquired strategies or skills or new ones they could potentially develop to proactively achieve their preferred standards (e.g., use agenda and make to do-lists to better manage time and feel more organized and in control). Encourage them to establish well-being and/or performance goals that are congruent with their preferred standards (e.g., if preferred standard is to feel confident, fast, and powerful on the ice, set performance goals that will enable athlete to achieve this). Give examples and make suggestions as necessary early on but allow for greater self-direction in later sessions (e.g., through trial-and-error, they can find their own answers and make their own choices).
- i) Explore internal and external factors that are hindering athletes from achieving their preferred standards and goals. Help them to find ways to adequately respond to these factors so as to not compromise their performance and well-being. For example, invite athletes to consider the importance of obstacles in relation to their priorities and goals, determine to what extent they can control them, where they should focus their time and energy, and reappraise them in ways that are more facilitative. Build on previous facilitative responses and successes.
- j) Discuss overall outcomes with the athletes by asking them to share their perceived level of well-being, stress, and burnout
- k) Ask athletes to reflect on and discuss any perceived changes in their level of self-awareness and self-regulation capacity and how this is impacting their thoughts, feelings, and behaviours.

- l) End each session by asking athletes to identify what they take away from the discussion and what they want to focus on until the next session.

Post-intervention:

- m) Ask athletes to provide feedback regarding the intervention process and their personal development.
- n) Assess perceived levels of stress, well-being, burnout, and self-regulation capacity and discuss next steps and goals for the future. Reassess at six months and one year.

Limitations and Future Directions

Despite the contributions highlighted above, the current study is subject to limitations. First, given the extensive and lengthy nature of the interventions, the sample was restricted to eight student-athletes from two universities. While the in-depth nature of the interventions led to rich, contextual data supporting the proposed DCASBBM, more studies must examine the value of this adapted model in guiding future research and practice with different populations of athletes experiencing stress and burnout symptoms. Nonetheless, given the novelty of this particular research and the inherent challenges in integrating two models in the delivery of any intervention, the researchers followed several steps to maximize trustworthiness.

In terms of additional future research, it would be valuable to identify the most effective self-regulation strategies for reducing stress and burnout symptoms and assess whether or not there are key periods in the burnout process in which student-athletes should learn and apply them. Specific themes (e.g., priorities, conflict between academic and sporting demands, pressure from coaches) that emerged in the current study also warrant future investigation. Finally, investigating the use of the DCASBBM in a group setting would shed light on the possibility of conducting burnout interventions with teams.

Conclusion

The aim of this study was to examine the integration and adaptation of the CASBBM in the context of multiple self-regulation interventions to facilitate positive changes in student-athletes reporting burnout symptoms. Results led to the DCASBBM, an adapted version of Smith's (1986) CASBBM. In particular, some components remained intact but were redefined (i.e., Situation, Cognitive Appraisal) whereas others were both retitled and redefined (i.e., Multidimensional Responses, Coping). Finally, new components were created (Personal Characteristics, Self-Regulation, Outcomes). The DCASBBM accounts for components associated with not only stress and burnout but also positive changes and outcomes (e.g., heightened well-being and performance) that can result from self-regulation interventions designed to alleviate stress and burnout symptoms. This study constitutes an important first step in developing an intervention framework to guide research and practice to prevent and reduce burnout in sport. It represents an attempt to empirically review and extend a commonly used and referenced model so that it may be integrated in real-world settings to positively impact student-athletes.

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Part IV

General Discussion

Purpose and Research Objectives Revisited

The overall purpose of this research was to investigate the implementation and impact of an individual, feel-based, person-centered, self-regulation intervention on the levels and experiences of stress, burnout, well-being, and self-regulation capacity of university student-athletes with moderate to high levels of burnout. Specifically, through the lens of a participatory paradigm and mixed-methods design, the following objectives were addressed in four scholarly articles:

- (a) Examine the levels of burnout among student-athletes at two Canadian universities and investigate whether there are significant differences related to gender, sport, year of university sport participation, academic year, and academic program.
- (b) Implement and assess the impact of a self-regulation intervention on the stress, burnout, well-being and self-regulation capacity of university student-athletes experiencing moderate to high levels of burnout.
- (c) Investigate the intervention process and experiences of student-athletes by chronologically presenting their story in order to address how they developed their self-regulation capacity over the course of the season, and the strategies they used to influence their experiences of stress, burnout, and well-being.
- (d) Investigate the integration and adaptation of the Cognitive-Affective Stress-Based Burnout Model (CASBBM) to facilitate positive changes in student-athletes participating in an individual self-regulation intervention to alleviate burnout symptoms.

Several significant findings emerged from this research. In order to provide a comprehensive account of these findings and highlight theoretical, methodological, and practical contributions, results will not be discussed within the context of each research objective or article in this section. Rather, they will be integrated and discussed in a way to provide a holistic understanding of the constructs under investigation. Furthermore, limitations and recommendations for future research and practice will be presented.

Integration and Interpretation of Empirical Findings

This research focused on four main constructs, that is, burnout, stress, well-being, and self-regulation capacity. In the following discussion, the university student-athletes' levels and experiences regarding these constructs are critically reviewed. Also, the discussion is strategically organized to showcase the participants at the beginning of the research and at the end after they completed an individual, feel-based, person-centered self-regulation intervention throughout their athletic season.

Baseline levels of burnout, stress, well-being, and self-regulation capacity. In order to fully depict the impact of the intervention and gain a better understanding of the student-athletes who could benefit from taking part in future self-regulation interventions, it is important to first examine initial burnout, stress, well-being, and self-regulation capacity levels. Burnout indices were investigated in the screening phase of the research and served to select participants for the intervention phase, thus they are discussed first, followed by baseline data for the other three constructs. Relationships between the various constructs are also highlighted.

Burnout. Data from the screening phase provided valuable insight into the burnout levels of university student-athletes. Overall, most of the student-athletes out of the sample of 145 participants reported low burnout levels, which corroborates findings from other athlete burnout

studies (DeFreese & Smith, 2013; Gustafsson et al., 2007). However, nearly 20% of them scored moderate to high (3.0 or higher) on two subscales of the ABQ (i.e., physical and emotional exhaustion, reduced accomplishment), which suggests signs of burnout. Since the data were collected in the first month of student-athletes' athletic season, these levels are alarming and suggest that burnout symptoms can develop rather quickly. They also reinforce the need for early burnout detection and intervention (Cresswell, 2009). Data from the screening phase also showed that academic program, academic year, and year of university sport participation did not influence burnout scores. Yet, the qualitative data collected from the eight student-athletes a few weeks later during the pre-intervention interview revealed that those in their first year of university perceived living away from home, adjusting to a new team, and having greater academic demands as stressful and exhausting. In contrast, those who were in their later years of study and had played university sport for a longer period of time were highly preoccupied with terminating their sport and establishing a career after graduating from university, and with meeting financial demands. Taken together, these results demonstrate the value in identifying sources of stress and burnout, since they can vary based on whether or not student-athletes are new or seasoned participants. They also support findings indicating that various sources of stress can contribute to athlete burnout (Gould et al., 1996; Smith, 1986).

Screening phase data also demonstrated that the type of sport the student-athletes practiced and their gender had a significant effect on their burnout levels. In particular, out of the sample of 145 student-athletes, the basketball players and swimmers reported higher levels of physical and emotional exhaustion than the hockey players and fencers. This may have possibly been related to greater perceived training loads in these two sports, which the athletes discussed during the intervention sessions. Moreover, it was not surprising that the female student-athletes

had significantly higher levels of physical and emotional exhaustion than their male counterparts since this was reported in other studies (Cremades et al., 2008; Heidari, 2013; Isoard-Gautheur, Trouillourd, Gustafsson, & Guillet-Descas, 2016). Interestingly though, out of the 15 student-athletes who reported burnout levels sufficiently high to be eligible to partake in the intervention phase, there was an equal number of women and men. Furthermore, after their scores on the physical and emotional exhaustion and reduced accomplishment subscales were ranked in order from highest to lowest, four men and four women were selected and agreed to participate in the intervention. There was thus an equal representation of both sexes in the intervention phase of the research. It is noteworthy that while there were commonalities in the female and male student-athletes' burnout experiences (e.g., amotivation, reduced performance), there was a distinct source of stress and burnout for the women and this was their coach. They reported experiencing considerable conflict with their coach in comparison to the men, and perceived their coach to have significantly contributed to their negative symptoms during the intervention. The role of the coach in the development and prevention of burnout should definitely be further explored in future studies, particularly in relation to female student-athletes.

With regards to baseline levels of stress, well-being, and self-regulation capacity, they were only measured with the eight student-athletes who were selected to participate in the intervention during the pre-intervention interview held two weeks after the screening phase.

Stress. Overall, the eight participants reported elevated levels of stress prior to the intervention, which is not surprising since they scored high on the ABQ during the screening phase and studies have shown that burnout and stress levels are positively correlated (Cresswell & Eklund, 2007; Durand-Bush, McNeill et al., 2015; Gould et al., 1996; Smith, 1986). Of note, their mean scores on the Perceived Stress Scale surpassed those reported in a recent study with

469 university students (Durand-Bush, McNeill et al., 2015). These results fuel the growing concern over the high levels of stress experienced by Canadian university students and the potential negative implications of stress on their mental health (Adlaf et al., 2005; Durand-Bush, McNeill et al., 2015). These findings also suggest that the stress experienced by student-athletes may be greater than that of their non-athlete counterparts. Kimball and Freysinger (2003) and Gould and Whitley (2009) reported that sport participation can, in fact, be an additional source of stress for student-athletes, which, may predispose student-athletes to a greater risk of burnout if they cannot adequately manage this stress.

Well-being. Similar to stress, the eight student-athletes reported low baseline levels of well-being, which supports previous studies examining the associations between stress and well-being (Lazarus & Folkman, 1984; Lundqvist & Raglin, 2015; Neely et al., 2009). Interestingly, DeFreese and Smith (2014) and Durand-Bush, McNeill and colleagues (2015) found that despite reporting moderate to high levels of stress, the university students in their study also exhibited high levels of well-being. This indicates that it is possible to maintain a desired level of well-being despite being in a stressful environment. More research must be conducted to examine factors allowing this association to occur. It would also be valuable to know if university student-athletes who experience both high levels of stress and well-being are at a lesser risk of burnout.

Self-regulation capacity. In terms of baseline self-regulation capacity levels, the eight student-athletes reported low capacity, and this level was inferior to that of university students in two other studies (Carey et al., 2004; Durand-Bush, McNeill et al., 2015). According to Durand-Bush, McNeill and colleagues (2015), self-regulation capacity may be an important buffer and help students to achieve satisfactory levels of well-being in spite of elevated stress and low mental health functioning. This obviously was not the case for the university student-athletes in

the current research at the onset of the intervention. However, as the season progressed, they improved their self-regulation capacity and concurrently increased their well-being while reducing stress and burnout symptoms. Yet, the qualitative data in Article 3 showed that even though there were improvements, the student-athletes still faced numerous stressors until the end of their season. The difference was that they developed self-regulation strategies to manage these stressors, and appeared to be less affected by them as the intervention evolved.

Stress and burnout can negatively impact people's self-regulation capacity (Durand-Bush et al., 2012; Tice, Baumeister, & Zang, 2004) and well-being (DeFreese & Smith, 2014; Durand-Bush et al., 2012), and the student-athletes in the current research clearly came into the intervention phase depleted from all standpoints. Interestingly, DeFreese and Smith (2014) found in a sample of athletes that the negative impact of stress and burnout increased as time progressed. Upon further reflection, it is possible to surmise that the timing of the intervention in the current research was crucial. Because burnout symptoms were identified early enough in the season and student-athletes invested considerable time and effort into learning to effectively manage themselves and their environment throughout the intervention, they may have been able to alter the negative cycle that stress and burnout likely had initially generated. Regardless of their initial low baseline levels, they were able to improve their functioning and well-being. This suggests that student-athletes who are stressed, burned out, and dysfunctional may benefit from a self-regulation intervention to prevent further negative consequences.

Student-athletes' stress, burnout, well-being, and self-regulation experiences. Given the use of a mixed-methods design, the researcher was able to focus not only on student-athletes' levels but also their experiences, including the various stress and burnout symptoms they

exhibited, what contributed to these symptoms, what alleviated them, and what allowed the student-athletes to increase their self-regulation capacity and well-being.

As highlighted in Article 3, student-athletes shared common burnout symptoms such as fatigue, frustration, and amotivation, which were discussed in previous studies (Cresswell, 2006; Goodger, Wolfenden et al., 2007). However, each participant also reported unique experiences and noted variability in these experiences as the intervention progressed. Remarkably, their symptoms extended beyond those captured under the Physiological Responses component in the CASBBM (Smith, 1986). Instead, they reflected the multiple dimensions (e.g., physical/physiological, emotional, cognitive, social) of felt experiences described in the RPM (Callary & Durand-Bush, 2008; Collins & Durand-Bush, 2010). This shows the value in integrating complementary frameworks when investigating burnout responses in student-athletes.

Excessive demands and inadequate resources contributed to the student-athletes' burnout symptoms and their perceptions were at the heart of their experiences. The demands most commonly reported included intense training schedules, academic tasks, pressure to succeed from coaches or from oneself, and conflicts stemming from relationships (i.e., coaches, parents, partners). These types of demands were also noted in other studies with student-athletes (Gould & Whitley, 2009; Kimball, 2007). Resources mainly pertained to social and financial support, as well as strengths, knowledge, and skills such as those required to successfully perform in sport. Smith (1986) did not distinguish between external and internal resources in the CASBBM, however, this was evident in the current research. For example, self-regulation skills became important internal resources the student-athletes used to manage situations as the intervention progressed.

Interestingly, what student-athletes perceived as resources in some situations were perceived as demands in others. In particular, coaches wavered from being a perceived demand to a perceived resource throughout the intervention process, depending on the quality of the relationship between the coach and the student-athletes. For example, whereas excessive pressure and conflict with the coach were considered demanding, technical support and encouragement were considered as resourceful. This dichotomy was addressed in recent studies showing that high quality coach-athlete relationships (i.e., closeness, commitment, complementarity) were negatively linked to all three burnout dimensions (Isoard-Gautheur et al., 2016), and controlling rather than autonomy supportive relationships were significantly related to burnout (Isoard-Gautheur et al., 2012). Beyond the fact that negative social relationships present further demands requiring the mobilization of additional resources, the negative impact may be much greater in that “people who regularly engage in demanding social interactions are likely to have a heavy demand on their self-regulatory resources and thus are more prone to self-regulatory failure in other contexts” (Hagger, Wood, Stiff, & Chatzisarantis, 2010, p. 77). As such, in order to limit the negative impact that impaired relationships may have on student-athletes, self-regulation interventions should involve key social support agents such as coaches so they can learn how to nurture student-athletes’ skills and create a climate that promotes self-efficacy, motivation, and resilience in the face of stress and burnout (Adie, Duda, & Ntoumanis, 2012; Durand-Bush, McNeill, & Collins, 2015). Two studies have shown the positive outcomes of including the coach in a self-regulation intervention conducted with a sport team (Callary & Durand-Bush, 2008; Collins & Durand-Bush, 2010). Multiple individual and team intervention sessions were held over the course of a season, which enabled both parties to address personal and collective needs, and to improve performance and well-being.

The student-athletes' experiences regarding self-regulation and well-being were addressed in Articles 3 and 4. Results show that the range of self-regulation strategies acquired and implemented by the student-athletes during the intervention was quite broad. Common ones included goal-setting, cognitive restructuring, self-talk, visualization, time management, and communication, which are similar to those found in previous studies (Gould et al., 1993; Jøuper & Gustafsson, 2013). In line with the Preparation component in the RPM (Callary & Durand-Bush, 2008), strategies were selected and proactively applied by the student-athletes as a way to achieve their preferred standards (e.g., feel the way they wanted) and set goals. Time management was perceived by the student-athletes as the most effective strategy to meet both school and sport demands and to prevent additional stress. When examining the sport psychology literature and various mental skills used to improve performance, time management is not commonly reported. As such, more research is warranted to further examine this skill as it can help student-athletes to not only strategically plan their efforts to self-regulate and achieve their goals but also cope with stress and burnout symptoms.

As indicated in Article 4, some strategies the student-athletes used to successfully cope with difficult situations were sometimes the same as those employed to self-regulate on a daily basis. However, coping and self-regulation efforts were distinguished in this research by the type and timing of student-athletes' efforts. While self-regulation efforts were considered as proactive and/or preventative and were deployed as often as possible in normal day-to-day situations to achieve personal standards and goals, coping efforts were considered as reactive and deployed after encountering adversity to decrease debilitating symptoms and responses. This distinction was captured in the revised CASBBM and may help student-athletes and practitioners to differentiate between Preparation and Coping when attempting to alleviate stress and burnout

symptoms and improve well-being and performance. In fact, in some ways, Coping is similar to the “Revisit the Way One Wants to Feel” component in the RPM. The difference is that coping efforts in Smith’s (1986) original model are enacted to reduce negative physiological responses whereas coping efforts in the RPM are designed to reconnect with preferred standards, which is more in line with the positive or optimal functioning concept in the positive psychology literature (Seligman & Csikszentmihalyi, 2000). Given that both positive and negative aspects of experiences are accounted for in the DCASBBM, coping may now take on different forms and lead to various outcomes.

Three key factors played an important role in the student-athletes’ capacity and willingness to effectively self-regulate during the intervention: (a) motivation, (b) self-efficacy, and (c) autonomy. Baumeister and Vohs (2007) shared that an important ingredient required for self-regulation is motivation. The student-athletes in the current research reported amotivation, a common symptom of burnout (Cresswell & Eklund, 2006), which may have explained their low initial self-regulation scores. Zimmerman (2000) also suggested that “low motivation is accompanied by unreactive self-observation” (p.252). As such, part of the researcher’s role during the early phases of the intervention was to provide means for the student-athletes to engage in self-observation via self-reflection and self-monitoring in order to explore motives for engaging in university sport, past positive experiences, and preferred standards, all of which led to increased awareness. However, as Zimmerman (2000) suggested, this increased awareness did not necessarily improve their motivation right away. In fact, an interesting finding was that the student-athletes’ heightened awareness in the early phases of the intervention intensified their experiences of stress. As such, the researcher used this as an opportunity to normalize their

experiences and also to explore and identify strategies to optimize their cognitive appraisals, to lessen their negative impact on their stress and burnout symptoms.

Self-efficacy and autonomy were equally fostered throughout the intervention process, which played a key role in allowing the student-athletes to start effectively self-regulating despite low levels of motivation. Zimmerman (2000) underlined the strong influence of self-efficacy in the process of self-regulation. He explained a negative vicious cycle in which failure to self-regulate can lead to greater stress due to unachieved performance standards, leading to a lower sense of fulfillment and efficacy, which in turn, contributes to further diminished capacity to self-regulate. This demonstrates the importance of prioritizing student-athletes' self-efficacy in self-regulation interventions. Interestingly, most student-athletes in the current research identified "feeling confident" as a preferred standard, which facilitated the researcher's aim to empower them to put in place strategies to monitor and heighten their confidence as necessary. According to Ryan and Deci (2006) and Zimmerman (1996), autonomy is another important factor in the process of self-regulation and is required to be intrinsically driven to achieve desired outcomes (e.g., improved performance and well-being). Interestingly, Kimball and Freysinger (2003) highlighted that autonomy is also required to effectively cope with stressors. Furthermore, low autonomy is associated with burnout (Hodge et al., 2008). These results help explain why the student-athletes in the current research reported experiencing low autonomy at the beginning of the intervention. This, compounded with the student-athletes' low self-efficacy and motivation, justifies why many of the strategies utilized early in the intervention addressed these constructs and served to help them take ownership of their life. Slowly, by increasing their self-efficacy, autonomy, and motivation, the student-athletes were able to not only reflect on the

question “How do I feel?” but also act on the question “What am I going to do about it?”, and note daily successes.

Intervention outcomes. The intervention had an impact on the student-athletes’ lives in several ways. Both their scores on the self-report measures and the experiences they shared during the interviews and intervention sessions capture how the intervention led to various changes. First, the student-athletes’ capacity to self-regulate progressively improved. Self-regulation capacity levels obtained at the end of the intervention and at the post-intervention stage were significantly higher than those obtained at the pre-intervention stage. These levels were also higher than those reported by 469 university students in Durand-Bush, McNeill et al.’s (2015) study, suggesting that even if student-athletes in the current research experienced stress and burnout symptoms and faced numerous demands as a result of their dual role of student and athlete, they were able to achieve a higher level of self-regulation capacity than a non-athlete university student population by participating in an intervention. This reaffirms that self-regulation capacity can in fact be learned with conscious effort and time (Zimmerman, 2000). It also suggests that self-regulation interventions may be beneficial for not only regular healthy university students (Guérin et al., 2010; Simon & Durand-Bush, 2009) but also depleted student-athletes like those in the current research. As demonstrated in Article 3, the student-athletes explained that managing their thoughts, feelings, and behaviours to achieve their preferred standards and goals was not an easy feat and involved setbacks. As such, an important finding is that improvements in self-regulatory competency do not necessarily occur in a linear fashion. As previously mentioned, motivation, self-efficacy, and autonomy are required to persist in the face of challenges. However, those facilitating interventions must be cognizant of the role they play in managing co-regulation processes in that they must offer a balance between interacting with

student-athletes to temporarily facilitate self-regulation and leading them to independent regulation (Durand-Bush, McNeill, & Collins, 2015; Hadwin et al., 2011).

The intervention also had a positive impact on the student-athletes' stress, burnout and well-being. As reported in Article 2, the participants' levels of stress and burnout significantly decreased as the intervention progressed. In fact, their mid, end, and post-intervention stress levels were significantly lower than those recorded at the pre-intervention stage. Also, their final levels were much lower than those reported by a large sample of university students (Durand-Bush, McNeill et al., 2015). Based on what the student-athletes revealed during the latter part of the intervention, it appears that their reduced stress concurred with their use of strategies allowing them to prioritize tasks, reduce the number of demands they faced, and perceive demands as a challenge rather than as a threat. This reinforces the importance of skills like strategic planning (Zimmerman, 2000) and cognitive appraisal (Smith, 1986).

Given the strong association between stress and burnout (Goodger, Gorely et al., 2007; Gould et al., 1996; Smith, 1986), it was not surprising that student-athletes' burnout levels also significantly decreased as they progressed throughout the intervention. Specifically, mean scores for the physical and emotional exhaustion and reduced accomplishment subscales at the end of the intervention were significantly lower than those prior to the intervention (i.e., screening phase). During the post-intervention interview, all participants described lower stress and burnout symptoms. Even though they anticipated having to face other situations in the future that could compromise their health and well-being, they felt more equipped to manage these situations with their newly acquired self-regulation skills and strategies. Such improvements in symptoms are meaningful since longitudinal studies conducted with student-athletes have revealed that there is a tendency for burnout symptoms to intensify as the season progresses

(Isoard-Gautheur et al., 2012; Lai & Wiggins, 2003). Fortunately, the opposite trend was observed with the implementation of the self-regulation interventions.

Levels of well-being equally improved as the student-athletes learned to self-regulate. Article 2 shows that well-being was significantly higher at the mid, end, and post-intervention stage, in comparison to the pre-intervention stage. The student-athletes' shared experiences corroborate these positive outcomes. For example, they reported increased positive functioning and control, which can be linked to the eudaimonic dimension of well-being (Ryan & Deci, 2001). They also conveyed heightened positive affect (e.g., happiness, confidence, energy, satisfaction), which reflect the hedonic dimension of well-being (Diener et al., 1999; Ryan & Deci, 2001). These outcomes are similar to those noted in previous studies in which a feel-based self-regulation intervention was implemented with athletes to improve performance and well-being (Arcand et al., 2007; Callary & Durand-Bush, 2008). While performance was not objectively measured in the current research, most of the student-athletes observed improvements in their sport and academic performance as they learned to implement various self-regulation strategies.

One outcome of the intervention that was uncommon yet significant pertained to withdrawal. Specifically, as mentioned in Article 3, one student-athlete revealed in the post-intervention interview that she was going to withdraw from her academic program the following year. In addition, a female hockey player whose experiences were not captured in the narrative accounts in Article 3, shared in her post-intervention interview that she was going to withdraw from hockey in order to pursue other options in sport. Smith's model (1986) presents withdrawal as a coping behavior or a negative consequence resulting from burnout, yet the model was criticized for the inherent assumption that burnout inevitably leads to withdrawal from sport

(Gustafsson et al., 2011). Current findings show that withdrawal can occur and may be influenced by increased awareness and self-regulation capacity. This was also found in a previous intervention study conducted with competitive athletes (Arcand et al., 2007). Carver (2004) and Gustafsson et al. (2011) stated that individuals who have greater levels of self-awareness and who can effectively self-regulate are more likely to disengage and withdraw effort when progress toward goals is slow or when desired outcomes are no longer realistic. This can also lead to lower perceived stress, particularly when individuals have identified alternative meaningful goals to pursue and a renewed sense of purpose (Wrosch, Scheier, Carver, & Schunk, 2003).

This may have been the case for the two student-athletes who planned to withdraw from academia and sport, respectively. Interestingly, these athletes were not the type who had high perceived investment and felt entrapped (Gustafsson et al., 2011; Raedeke, 1997). On the contrary, they decided to disengage from their goal of completing their academic program or playing on the university hockey team after realizing that this goal no longer aligned with their priorities, preferred standards, and overall well-being. While those who facilitate self-regulation interventions should encourage student-athletes to pursue their set goals, they should also guide them in reappraising these goals when they are unattainable or unfulfilling (Wrosch et al., 2003).

In sum, findings from this research show that university student-athletes who experienced burnout symptoms concurrently exhibited high levels of stress and low levels of well-being and self-regulation capacity. As a result of participating in an individual, feel-based, self-regulation intervention spanning their athletic season, they were able to learn valuable self-management skills and strategies and achieve various positive outcomes, namely, reduced stress and burnout symptoms, and increased well-being and self-regulation capacity. While some student-athletes

perceived positive changes in their sport and academic performance, two athletes made the courageous decision to leave their environment to pursue more fulfilling objectives.

Contributions of the Research

This project contributes to the athlete burnout and self-regulation literature in several ways. The following section provides examples of theoretical, methodological, and applied contributions of this research.

Theoretical contributions - The adapted DCASBBM. As discussed in Article 4, this research led to the development of an adapted version of Smith's (1986) CASBBM, that is, the DCASBBM, which can serve as a potential tool for future research and practice. This adapted model helps fill an important gap in the area of sport burnout interventions (Goodger et al., 2007) and models (Gustafsson et al., 2014). Accounting for findings derived based on the integration of two different frameworks (i.e., CASBBM and RPM), the DCASBBM offers a comprehensive and flexible lens through which interventions can be guided to promote positive changes in student-athletes experiencing stress and burnout symptoms. Rather than presenting burnout as a linear stress-based process leading to negative outcomes, the adapted model facilitates the interpretation of various negative and positive scenarios that can occur in the treatment and prevention of burnout. In particular, it showcases how self-regulation capacity can play an integral role as an agent of change and lead individuals to achieve desired standards and goals (Weinstein, Brown, & Ryan, 2009; Zimmerman, 1996). While the DCASBBM is inclusive, it does not address all correlates of burnout like Gustafsson et al.'s (2011) sport burnout model aims to do. However, a strength of this is that the DCASBBM may be more fitting and user-friendly when attempting to apply it in research and practice.

Methodological contributions. It was suggested in a systematic review of the sport burnout literature that future research should include multi-methods, with an emphasis on qualitative data and longitudinal designs (Goodger, Gorely et al., 2007). The methodological approach used in this research addressed all of these gaps. Specifically, the concurrent transformative mixed-methods design that was utilized allowed the researcher to collect and triangulate both quantitative and qualitative data over multiple time points throughout the student-athletes' athletic season. The use of a longitudinal design indeed fills a void that has been expressed by several researchers (Curran, Appleton, Hill & Hall, 2011; Durand-Bush, McNeill et al., 2015; Eklund & DeFreese, 2015; Gould & Whitley, 2009). Given the breath and depth of the interviews and intervention sessions conducted with several student-athletes, the qualitative data was extensive and was prioritized over the quantitative data. This enabled the researcher to fulfill another gap in the literature, that is, to demonstrate how burnout experiences are unique and can change as a result of a self-regulation intervention. By meeting the student-athletes every two weeks over the course of their sport season, the researcher was able to gain deeper insight into what can increase and decrease their stress, burnout, well-being and self-regulation capacity.

The use of the participatory paradigm enabled the researcher to play a unique role in the research process. From beginning to end, she was immersed in all aspects of the research and engaged in self-reflection and self-monitoring, which allowed her to stay true to the person-centered nature of the interventions and meet the participants' needs as best as possible. As Arcand and colleagues (2007) reported, the researcher was also able to initiate changes in her own daily life in order to feel the way that she wanted when delivering the intervention sessions. For example, through her various debriefing sessions with her supervisor and her reflexive logbook, the researcher who initially felt, to a certain degree, nervous about facilitating her first

burnout intervention, was able to quickly change her perspective and feel confident and empowered to work with these student-athletes. She no longer felt as though the student-athletes were doing her a favor by participating in the study but rather that they were jointly creating knowledge and meaning. She also learned that when the student-athletes left a session without having all of the answers, there was greater opportunity for reflection for both parties, which positively fuelled discussions during subsequent sessions. This, in turn, heightened the quality of the researcher-participant relationship and contributed to the success of the interventions. While the researcher was an active participant in the intervention process, she still aimed for the participants to become agents of change in their learning process. In essence, the researcher respected important co-regulation principles associated with effective self-regulation (Durand-Bush, McNeill, & Collins, 2015).

Applied contributions. Researchers have been advocating for intervention studies to assist competitive athletes experiencing burnout (Gustafsson et al., 2011; Kenttä, Hassmén, & Raglin, 2006; Lonsdale & Hodge, 2011; Lonsdale et al., 2009). The current research directly addresses these calls for action and offers several practical implications. First, results can be used to prepare presentations or workshops that can be offered to student-athletes, coaches, and practitioners seeking processes and strategies to alleviate and prevent chronic stress and burnout in sport. It would be valuable to share both the DCASBBM and personal examples provided by the student-athletes in these presentations and workshops. Quantitative (e.g., examples of self-report measures) and qualitative (e.g., examples of journals) methods enabling the early identification and monitoring of symptoms could also be discussed. Finally, concrete strategies that may be used to nurture student-athletes' self-regulation capacity, including their autonomy, self-efficacy, and motivation would be important to address as well.

An important goal of such applied presentations and workshops would be to help student-athletes remain in sport, even when facing adversity such as chronic stress and burnout. It is noteworthy that all eight student-athletes in the current research had a 100% attendance rate throughout the intervention, which is quite remarkable given their vulnerable states. Indeed, adherence has been identified as a potential challenge in athlete interventions (Crocker et al., 1988). The fact that all participants committed to the intervention process from start to finish without missing one session speaks to the value and benefits they drew from their bi-weekly sessions. Many of the student-athletes shared during the post-intervention interview that they wished that they had had the opportunity to take part in a similar intervention in previous years and felt as though, many of their teammates could have benefited from participating in the research project. This underscores the importance of knowledge translation in order to offer this type of intervention to as many student-athletes as possible. It would be worthwhile to verify in future studies if the intervention would provide the same benefits to student-athletes if implemented using a group or blended learning (i.e., with online component) format. If so, it would extend the reach to student-athletes.

Establishing that self-regulation capacity can be learned and that, through training, student-athletes can learn to prevent and reduce stress and burnout symptoms has important implications for practitioners (e.g., mental performance consultants). Lu et al. (2016) highlighted the potential of providing vulnerable student-athletes counselling services that are focused on challenging appraisals and promoting cognitive restructuring. According to Goodger and colleagues (2006), practitioners can also aid in the prevention of burnout by assisting athletes in managing their expectations and setting goals to enhance motivation and identity development. Academic mentors and mental performance consultants may wish to work together to put in

place a process for university student-athletes to develop their self-regulation capacity. It would be valuable to find ways to integrate coaches and other significant others in this process in order to enable student-athletes to experience as much congruence and support as possible.

Limitations

Despite the benefits and positive outcomes of this research, limitations must be discussed. These pertain to the sample in both phases of the research, the self-report measures, and the accessibility of the intervention.

Participant sample. First, although an attempt was made to recruit student-athletes from different sports and years of study in the screening phase, there was an overrepresentation of hockey players and first year students. An important goal of this phase was to identify eligible participants for the intervention phase of the project, therefore, an equal distribution of participants was not a significant concern. Rather, the researcher sought the participation of as many eligible and consenting university student-athletes as possible in order to ensure that a sufficient number of them could be invited to take part in the intervention. Also, many sport teams were not eligible to partake in the research given the shorter duration of their season (e.g., cross-country running, track and field, soccer). As such, when the coaches from all four hockey teams invited the researcher to meet with their players, she welcomed the opportunity to include as many of them as possible in the sample. Given that the selection for the intervention phase was based on scores rather than on distribution, this skewed representation was replicated in the intervention phase. Four of the eight student-athletes who participated in the intervention were hockey players, although one was a woman and the three others were men. In relation to years of study, the fact that a large number of student-athletes were in their first year of study may simply be a result of interest or attrition within the university sport context. Anecdotal evidence suggests

that students are more likely to play university sport in their first years of university, and for various reasons, they stop playing in later years.

Due to the in-depth nature and breadth of the individual interventions, the researcher had to limit the number of participants in the intervention phase. It was decided that due to extensive time requirements, a feasible number of participants would be eight. Estimating that each of the eight student-athletes would participate in eight individual interventions, this meant that the researcher would be responsible for conducting over 60 one-hour intervention sessions, in addition to eight pre-intervention and eight post-intervention interviews, all of which would need to be transcribed and analyzed. Therefore, despite the added value of conducting this intervention with more student-athletes, this would not have been feasible in the current research.

Finally, given the in-depth nature of the analytical process required to construct narratives (Smith, 2010) and due to page restrictions associated with most peer-reviewed journals, the researcher chose to focus on four cases in Article 3. Nonetheless, the cases were carefully selected to capture varied experiences in order to meet the research objective.

Self-report measures. Self-report measures have been criticized for generating biased responses based on social desirability (Van de Mortel, 2008). For example, when reporting socially-sensitive information, participants may inaccurately respond, whether consciously or subconsciously, in an attempt to conform to socially-acceptable standards (Van de Mortel, 2008). It is possible that this occurred when student-athletes completed the self-report measures in the current research. For example, even though participants were assured that their coaches would not gain access to the collected data, there is a possibility that some of them feared disclosing information that may have indicated high levels of burnout. The opposite effect could have occurred in the intervention phase. In an effort not to let the researcher or even themselves down

after developing a good rapport, it is possible that the athletes overestimated the effectiveness of the intervention. In addition, Winne and Perry (2000) suggested that self-reports measuring self-regulation may not fully capture one's capacity, especially within a specialized learning environment. These potential drawbacks emphasize the importance of using mixed methods to triangulate the data, which was an important trustworthiness step in the current project.

Accessibility of the intervention. A key limitation in terms of future research and applied practice pertains to the accessibility of the intervention. As previously mentioned, the individual and person-centered nature of the self-regulation interventions was instrumental in the current research and in previous studies as well (Arcand et al., 2007; Doell et al., 2006; Guérin et al., 2010; Simon & Durand-Bush, 2009). However, stress is an inevitable part of sport and life in today's society, and the format of the intervention precludes it from being accessible to a vast number of student-athletes in any given period of time. Furthermore, one of the strengths of the interventions was that they were facilitated by a trained researcher who also worked as a mental performance consultant with numerous athletes in her private practice. Yet, access to a mental performance consultant who can deliver an intervention of this depth is not always possible. Furthermore, interventions of this sort in real life settings may actually be financially unfeasible for many student-athletes. As such, new formats should be explored to increase the accessibility of the interventions so that as many university student-athletes as possible can participate.

Recommendations for Future Research and Practice

Given the lack of intervention studies in the area of sport burnout and the several innovative features of the current research, avenues for future research and practice are plentiful. For example, future research is needed to evaluate the applicability of the DCSSBM as an intervention framework with student-athletes from different age groups, sporting contexts, and

levels of competition. In particular, researchers and practitioners should examine the implementation of the intervention framework with teams and with student-athletes who have short, yet intense sport seasons. Given the value of mixed-methods designs, it is recommended that this type of design be used again in future studies.

In terms of recommendations for examining more specific constructs related to stress and burnout, the quality of the coach-athlete relationship emerged as a key factor in the current research. The coach significantly impacted relationships and was perceived as sometimes a demand that exacerbated stress and burnout symptoms and sometimes as a resource alleviating these symptoms. Coach-athlete relationships have been the focus of recent burnout studies (Isoard-Gautheur et al., 2012; Isoard-Gautheur et al., 2016). However, future inquiries should aim to gain a deeper understanding of specific ways in which coaches can foster student-athletes' self-regulation capacity by creating autonomy-supportive climates in order to help them optimally function, even in the face of stress and burnout.

Integrating various biofeedback modalities when conducting future self-regulation interventions could also provide valuable insight. Gustafsson et al. (2011) suggested that the examination of psychobiological markers has been neglected in burnout research. Dupee and Werthner (2011) demonstrated that athletes can manage stress responses by becoming more self-aware and by learning to self-regulate through the use of biofeedback. As such, psychobiological data collected at various time points throughout self-regulation interventions could complement other data collection measures and increase the trustworthiness of studies. These data could also enrich student-athletes' learning process by increasing their self-awareness and providing opportunities to self-monitor and self-reflect.

Part V

Conclusion

There is a growing concern that burnout affects the long term health and well-being of athletes (DeFreese & Smith, 2014; Gould & Whitley, 2009; Lundqvist & Raglin, 2015). Gould and Whitley (2009) stated that “it is especially important to assess burnout in collegiate athletes because of their efforts to not only perform at the highest levels athletically but simultaneously pursue academic degrees full-time” (p.25). Taking it a step beyond assessment, scholars reiterated that intervention studies aiming to prevent and reduce burnout symptoms must become a priority (Eklund & DeFreese, 2015; Gustafsson et al., 2011; Lundqvist & Raglin, 2015). This research aimed to fill this important void in the literature and provide athletes, coaches, researchers, and practitioners with an understanding of how a self-regulation intervention can influence the burnout process. Indeed, the purpose of this research was to investigate the implementation and impact of an individual, feel-based, person-centered, self-regulation intervention on the levels and experiences of stress, burnout, well-being, and self-regulation capacity of university student-athletes with moderate to high levels of burnout. Four studies with distinct objectives were carried out over two phases; a screening and an intervention phase.

Study 1: Examine the levels of burnout among student-athletes at two Canadian universities and investigate whether there are significant differences related to gender, sport, year of university sport participation, academic year, and academic program.

Study 1 revealed that the burnout levels of the 145 student-athletes in the screening phase were very comparable to those found in other studies (DeFreese & Smith, 2013; Gustafsson et al., 2007). However, nearly one fifth of them scored high on two of the three subscales of the ABQ, uncovering burnout symptoms. This is worrisome given that the student-athletes were only beginning their athletic season. Student-athletes’ academic program, academic year, and year of

university sport participation did not influence their likelihood of experiencing burnout symptoms, indicating that student-athletes in any phase of their university experience and pursuing different programs may develop such symptoms. Nevertheless, significant differences were found with regards to gender and type of sport. Specifically, female student-athletes were more physically and emotionally exhausted than their male counterparts. Also, the basketball players and swimmers were more exhausted than the hockey players and fencers. Interestingly, while less fatigued, the fencers attributed less value to their sport than the student-athletes playing hockey and volleyball. These results suggest that certain dimensions of burnout may be more pronounced for women and within particular sport environments.

Study 2: Implement and assess the impact of a self-regulation intervention on the stress, burnout, well-being and self-regulation capacity of university student-athletes experiencing moderate to high levels of burnout.

Several positive findings emerged from Study 2 in which the impact of a season-long, feel-based, person-centered, self-regulation intervention was examined. The quantitative and qualitative data collected at various time points demonstrated that the intervention significantly increased the student-athletes' capacity to self-regulate, which supports results from previous intervention studies conducted with healthy athletes and university students. The student-athletes, who had reported moderate to high levels of stress and burnout and low levels of well-being at the onset of the research, benefitted from the intervention by improving these levels over time. These results are promising and suggest that vulnerable student-athletes can learn to effectively manage themselves and their environment, even when facing difficult conditions.

Study 3: Investigate the intervention process and experiences of student-athletes by chronologically presenting their story in order to address how they developed their self-regulation capacity over the course of the season, and the strategies they used to influence their experiences of stress, burnout, and well-being.

The stories of four student-athletes conveyed through chronological narratives in Study 3 demonstrate their unique burnout experiences and reinforce the importance of conducting individualized interventions to address personal needs. The way in which each student-athlete wanted to feel, think, and behave throughout the intervention differed based on their personal characteristics and evolved as they learned to manage a variety of challenging situations. They developed their self-regulation skills using processes such as goal-setting, planning, time management, cognitive restructuring, self-control, visualization, and self-reflection. Although their academic and athletic year was tumultuous at times, the student-athletes perceived increasingly more control, self-efficacy, and motivation. In the end, they reported experiencing less stress and burnout symptoms as well as more quality performances and well-being.

Study 4: Investigate the integration and adaptation of the Cognitive-Affective Stress-Based Burnout Model (CASBBM) to facilitate positive changes in student-athletes participating in an individual self-regulation intervention to alleviate burnout symptoms.

In Study 4, it was discovered that while many of the themes emerging from the participants' accounts were aligned with the components of CASBBM, the latter was not comprehensive enough to capture all of their experiences. As such, an adapted and dynamic model was proposed (i.e., DCASBBM), which comprised the following components: (a) personal characteristics; (b) situation; (c) cognitive appraisal; (d) multidimensional responses; (e) coping; (f) outcomes, and (g) self-regulation. Some of these components are the same as that in the CASBBM, however, others were adapted and new components were put forth to account for the multitude of experiences, outcomes, and changes reported throughout the interventions. This adapted model makes a significant contribution to both theory and practice, as frameworks to prevent and alleviate stress and burnout symptoms in student-athletes are sorely lacking.

In summary, this research confirms that student-athletes, even when suffering from stress and burnout symptoms (i.e., amotivation, frustration, exhaustion), can learn to effectively self-regulate in order to achieve positive outcomes such as heightened well-being and performance. The person-centered interventions facilitated by the researcher provided a flexible platform through which the student-athletes learned strategies to make autonomous decisions in line with their preferred standards and goals. The student-athletes' full engagement and benefits derived throughout the intervention process reveal its value and potential for helping vulnerable populations. One male hockey player described how his expectations changed over time: "Thinking back, I realize that I had low expectations at the beginning of the intervention. I definitely underestimated myself but after every meeting, I felt pretty good and I learned key things that stayed with me. I liked it and I am glad I did it" (H10).

Intervention research in the field of sport burnout is in its infancy. Therefore, it is hoped that the current project will help propel scholars to conduct empirically-sound studies examining the various ways in which burnout interventions can address compromised health and well-being in sport and university contexts. Furthermore, it is vital that knowledge gained from this research be transferred to athletes, coaches, and practitioners in a user-friendly format so they can readily use findings to promote and achieve adequate health and positive experiences throughout their career.

Part VI

Statement of Contributions

Although all aspects of this research were led by the doctoral candidate, Nicole Dubuc-Charbonneau, the next section will summarize the contributions of many others who contributed to the project along the way. First, Dr. Natalie Durand-Bush, the thesis supervisor, was involved in every phase of the research. For example, she was involved in the initial development of the research and engaged in regular debriefing sessions with the doctoral candidate throughout the data collection and analysis phases of the study. She reviewed all parts of the dissertation. As such, she was a co-author on all manuscripts emerging from the research.

Dr. Penny Werthner and Dr. Tanya Forneris also provided helpful feedback regarding the research protocol in the early phases of the project. Dr. Forneris, also provided her expertise and guidance with regards to the quantitative data analysis and was a co-author on Article 2. Ms. Kylie McNeill and Dr. Jamie Collins contributed in various ways. Both took part in the multiple coding check performed during the data analysis phase. In addition, Kylie provided valuable feedback in the revision of some of the manuscripts, whereas Jamie was a member of the panel of external reviewers who contributed to the model revisions. The two other members of the panel, one of whom was the student-athlete who took part in the pilot study, also shared helpful comments when reviewing the model. They will not be named to protect anonymity.

Part VII

References and Appendices

Within the next section, a list of all of the references appearing in the dissertation that were not included in any of the four articles will be provided. This will be followed by the appendices that were referenced in the dissertation.

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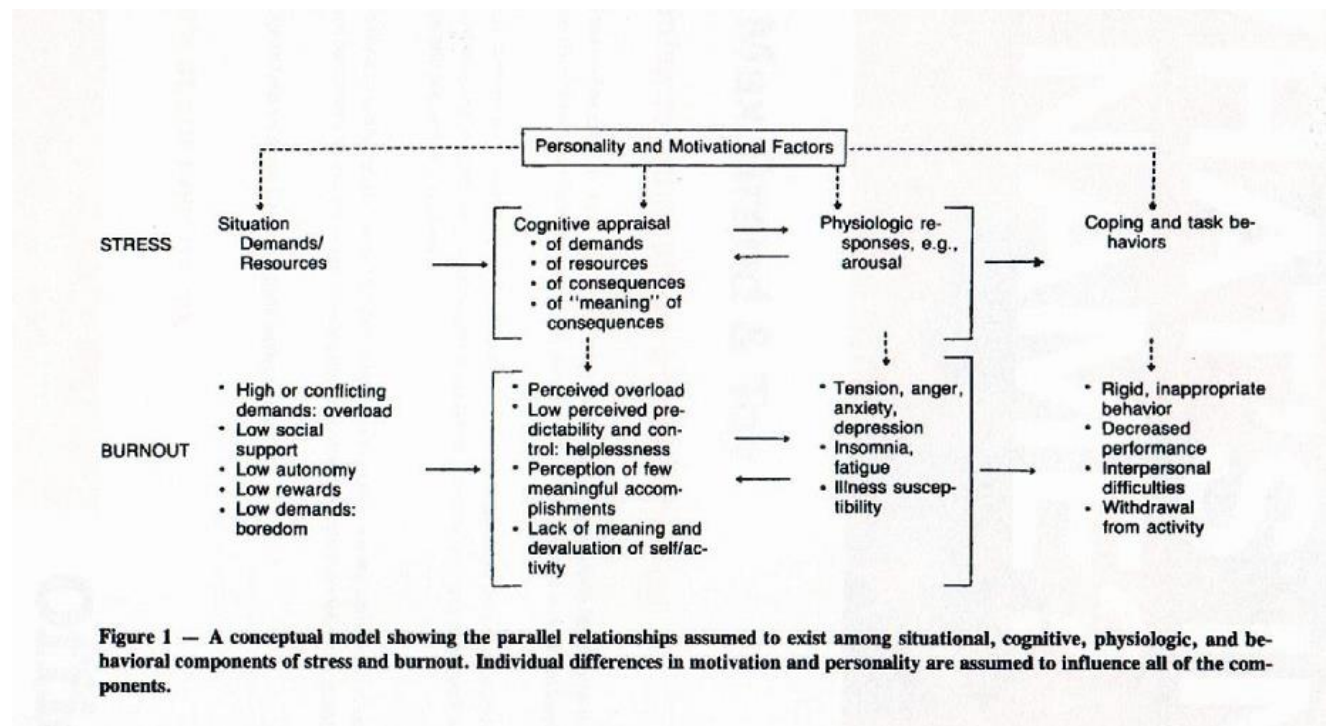
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Appendix A

Figure 1. Cognitive-Affective Stress-Based Burnout Model (CASBBM, Smith, 2006)



Appendix B**Figure 2. The Resonance Performance Model (Callary & Durand-Bush, 2008)**

Appendix C

Consent Form (Pilot Study)

Title of study: IMPLEMENTATION OF A FEEL-BASED SELF-REGULATION INTERVENTION WITH UNIVERSITY STUDENT-ATHLETES TO ADDRESS STRESS, BURNOUT, AND WELL-BEING

Researchers: Nicole Dubuc-Charbonneau, Ph.D (cand)., and Natalie Durand-Bush, PhD, School of Human Kinetics, Faculty of Health Sciences, University of Ottawa.

Invitation: I am invited to participate in a study conducted by Nicole Dubuc-Charbonneau and Natalie Durand-Bush as part of Nicole Dubuc-Charbonneau's doctoral thesis research.

Purpose of study: The purpose of this study is to examine the process and the effects of a self-regulation intervention designed to reduce stress and burnout and promote well-being in university student-athletes.

Participation: My participation in this pilot study will consist of taking part in a self-regulation feel-based intervention for 5 weeks. Specifically, I will partake in a pre- and post-intervention interview and three individual intervention sessions every week with the researcher who is also a trained mental performance consultant. The data collection will be broken down as follows:

Pre-intervention

- One individual interview (approximately 60 minutes)
- Four self-report questionnaires (10-15 minutes)

Intervention

- Three individual consulting sessions (approximately 60 minutes each)

Post-intervention

- One individual interview (approximately 60 minutes)
- Four self-report questionnaires (10-15 minutes)

In addition, by taking part in the intervention I will be asked to keep a journal every couple of days to monitor my reflections.

Anonymity and confidentiality: The interviews and intervention sessions will be audiotaped, and scheduled at a time and at a location that is convenient to the researcher and I. The information I will share throughout the study will remain strictly anonymous and confidential. I will be assigned an anonymous code that will be used by the researchers for the data collection and analysis. Any information that could reveal my identity in the data as well as in any published document or conference presentation, will be removed. I may be quoted in presentations or publications provided that I give my permission below, however, my anonymity is guaranteed.

All audiotapes, and printed documents will be stored in a locked filing cabinet in Dr. Durand-Bush's laboratory at the University of Ottawa for a period of five years after which point, all electronic and printed documents will be destroyed. Any electronic document will be saved on the principal researcher's computer that is protected by a password and she will be the only one able to access these documents. I will receive a copy of my coded interviews/intervention sessions for verification.

Risks: There is minimal risk involved in this study and I am free to withdraw at any time without negative consequence. One possible risk is that I may experience discomfort when reflecting on stressful situations and on how I feel. However, the information that I choose to share is entirely up to me, and no one will encourage me to discuss anything with which I am uncomfortable. In the occurrence that I am uncomfortable discussing a particular topic during the intervention, I am free to ask the researcher to change topics or end the session. Should the researcher feel at any point that additional support would be beneficial or required, an appropriate referral will be made. I know that I can contact the researchers during the study to address any questions or concerns I may have.

Benefits: Many athletes have reported benefits from participating in previous self-regulation interventions as it has helped them become aware of how they feel and want to feel in sport and daily life, and develop strategies in order to improve their performance and well-being. Since the present study involves several intervention sessions, it could provide a valuable learning experience for me, and help me become more aware and regulate how I feel in order to reduce stress and increase well-being.

Voluntary participation: My participation in this study is completely voluntary. I may withdraw from the study at any time and/or refuse to answer questions without any negative consequence. If I chose to withdraw from the study, the data collected up until that point will be securely stored as described above or destroyed if that is my preference.

Consent. I, _____, accept to participate in this pilot study conducted by Nicole Dubuc-Charbonneau (PhD can) and Natalie Durand-Bush (PhD) from the School of Human Kinetics, Faculty of Health Sciences, University of Ottawa. I also accept that the results of this study including citations could be published in scientific articles and presented at conferences but that my name will not be mentioned at any time.

I understand that I am free to withdraw from the project at any time, including before or during the interviews and intervention sessions. I can also refuse to participate in any aspects of the study, withdraw shared information from the interviews/intervention sessions, and refuse to answer questions without any consequences or prejudice. My signature is given with the understanding that I do not have to give up any rights, that I have been informed of the requirements of the research, and that I agree to take part in this proposed research project.

Please check one of the following options:

- ☐ I agree to be quoted but all personally identifying information shall be removed or altered and contents of the quotes shall not be revelatory of my identity
- ☐ I do not wish to be quoted at all

For any additional information regarding this study, I may contact the researchers. Any information requests or complaints about the ethical conduct of the project may be addressed with the Protocol Officer for Ethics in Research, Tabaret Hall, 550 Cumberland Street, Room 159, Ottawa, ON, K1N 6N5, tel.: 613-562-5841, e-mail: ethics@uottawa.ca.

There are two copies of the consent form, one for myself that I may keep and one for the researcher.

Researcher's signature: _____ Date: _____

Participant's signature: _____ Date: _____

Should you have any questions regarding this research project, please contact

Dr. Natalie Durand-Bush:
Tel. number:
Fax number:
E-mail address:
School of Human Kinetics
Faculty of Health Sciences
University of Ottawa

Nicole Dubuc-Charbonneau:
Tel. number:
Fax number:
E-mail address:
School of Human Kinetics
Faculty of Health Sciences
University of Ottawa

Appendix D

Pre-intervention Interview Guide

Goal: Gain background information on the student-athletes's sport and daily life experiences and introduce concepts of stress, burnout, well-being, and self-regulation in order to identify initial understanding and experience of these phenomena.

1. General opening questions

- Tell me about yourself and your sport experiences.
- What is important to you about participating in your sport at the university level?

2. Primary questions and probes

Stress/Burnout

- What is stress to you? What about burnout, how would you define it?
- How does your description of stress and burnout relate to your recent sport and academic experiences?
- How does your level of stress and burnout influence your sport performance and daily life?

Well-being

- What is well-being to you?
- How does your description of well-being relate to your recent sport and academic experiences?
- How does your well-being influence your sport performance and daily life?
- Can you describe a time when your level of well-being was optimal? How does it compare to your current level of well-being?

Self-regulation

- What is self-regulation to you (i.e., probe for control of thoughts, behaviours, and feelings from a multidimensional perspective)?
- How would you describe your ability to self-regulate in your sport and daily life?
- Does your self-regulation ability influence your levels of stress, burnout, and well-being? How so, how?

Appendix E

Intervention Session Guide: Session 1

Goal: Initiate in-depth reflection on the four components of the RPM and the four components of the CASBBM in order to identify key areas for intervention. The following may be asked in a different order depending on what is most relevant to the student-athlete to discuss first.

Your Feel (establish preferred standards)

- How do you typically feel while participating in your sport? Be as explicit and descriptive as possible (probe for different dimensions - e.g., physical, cognitive, emotional, social).
- How would you like to feel when you perform in that environment? Describe this feeling to the best of your ability. If it helps, think of a time when you really felt the way you wanted in your sport. As you relive it in your mind, describe it to me.
- Do you want to feel the same in your sport and other life situations, for example, at home, at school? Explain why and how this may be different.

Preparation

- What allows you to feel the way you want (probe for thoughts, behaviors, environmental factors, strategies, goals, etc.)
- How often do you feel the way you want?
- Can this be improved, if so, how (probe for perceived control of situational demands and resources, possibility of cognitive reappraisal of situations and development of new self-regulatory strategies)

Obstacles

- What prevents you from feeling the way you want on a daily basis (probe for internal and external barriers - e.g., lack of motivation, self-efficacy, perceived control/autonomy, and resources, fear, excessive demands, inability to balance sport and academia)?
- Tell me about some of the obstacles (e.g., stressors) you are currently facing or have faced in the past in your sport.
- How do these obstacles affect your (a) thoughts, behaviours, and how you feel, (b) sport and academic performance, (c) well-being, (d) levels of stress and burnout, (e) ability to self-regulate?
- Have you been able to overcome some obstacles, if so which ones and how? If you have not, what prevented you from doing so, and in hindsight is there anything you could have done better or differently?
- Did an obstacle(s) ever get so big in your life that you felt you had to quit or remove yourself from the situation? Please explain and give examples (probe for physical and emotional exhaustion, reduced accomplishment, and sport devaluation).

Revisiting Your Feel

- When you face an obstacle in your sport or daily life, how do you typically react or respond? What do you do after? Give me an example of a sport vs academic situation.
- Can your reactions and/or responses be improved? If so how, if not, what leads you to say this (probe for possibility of cognitive reappraisal and improvement of physiological responses to stressors by exploring strategies that have worked in the past)?
- When you face an obstacle, do you do anything to reconnect with the way you want to feel, think, and behave, which you described earlier? If so, what do you do?
- What strategies can you develop and realistically apply to optimize your responses/coping when you face obstacles so that you can feel the way you want again? Please explain.
- What could be some benefits of revisiting the way you want to feel on a regular basis?

Summary

- Can you summarize the key points of our discussion thus far? Let's write these down so you can leave with some tangible information to help you throughout the intervention process.
- I would like to discuss the reflective journal, which is an important component of the self-regulation process that will help you track your progress and increase your self-awareness (explain journal process, content, and how it will be an integral part of the intervention and invite participant to start completing the journal).
- Do you have any concerns or questions before we end this session? Thank you for participating and see you soon.

Appendix F

Intervention Session Guide: Session 2 to 7-9

Goal: Discuss current perceived levels of stress, burnout, well-being, and self-regulation (e.g., forethinking, self-monitoring, self-reflection) and how these are affecting each other in order to make the necessary adaptations to achieve preferred standards and goals.

- How have you felt during the last two weeks? Give me examples of different situations in your sport, at school, at home.
- Describe your level of stress, burnout, and well-being? Has anything changed? If so, what has contributed to a decrease or an increase in these levels (e.g., probe for physical and emotional exhaustion, positive and negative affect, satisfaction, motivation, autonomy)?
- Have elements within your situation/environment changed within the last two weeks (e.g., probe for demands, resources, social support, mastery/autonomy opportunities)?
- Did your perceptions (i.e., cognitive appraisals) of your inner states and environment change, if so, how? How have your perceptions influenced the way you felt, thought, behaved?
- Have you implemented any strategies to feel, think, behave the way you want? How did this influence your performance and your level of well-being, stress, and burnout?
- Describe the obstacles you faced. How did you perceive and respond to these obstacles? Were you able to reconnect with the way you want to feel? What allowed you or prevented you to do this?
- How is your level of awareness and your ability to regulate how you feel, think, and behave? Has it changed? If so, how? What are the results of this?
- Tell me about the journaling process. Are you experiencing any difficulties or challenges, positive experiences, key reflective moments? Have you been engaging in regular reflection? How has this influenced your sport and daily life experiences?
- Overall, what are the most significant lessons for these last two weeks?

Appendix G

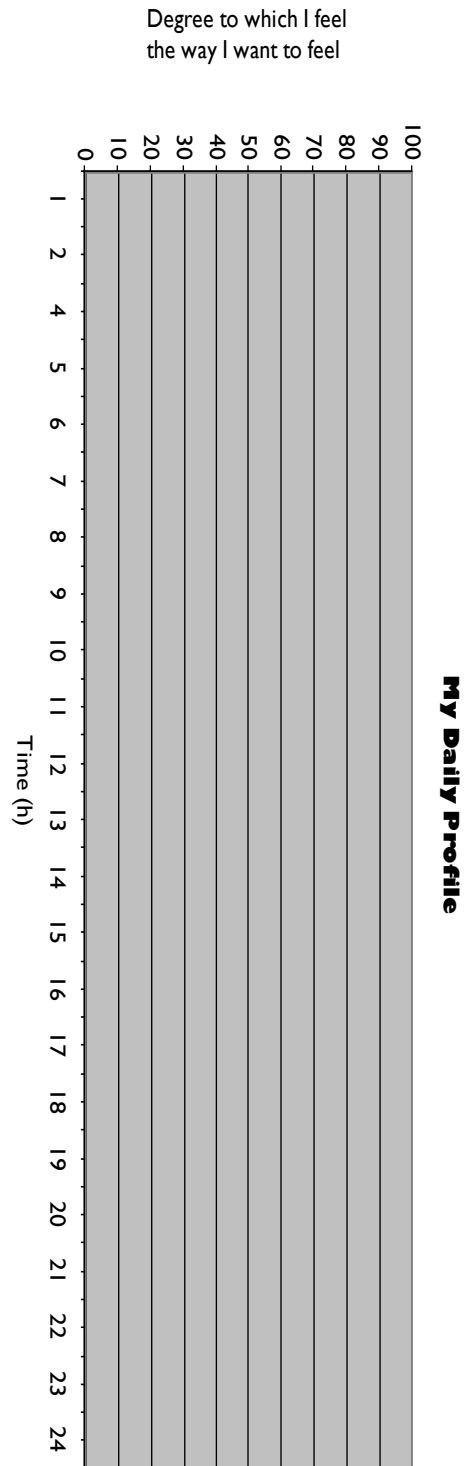
Post-intervention Interview Guide

Goal: Explore (a) the participant's overall experiences in the study, (b) perceived ability to self-regulate in comparison to that at the beginning of the intervention, (c) perceived changes as a result of the intervention and how these have influenced levels of stress, burnout, and well-being, (d) implications for the future (e.g., if and how this process will help the student-athlete in future sport experiences and every day life).

- Tell me about your overall experience with this study.
- How do you feel now? What strategies have you put in place to feel, think, behave the way you want more of the time?
- Did the intervention improve your self-regulation (e.g., ability to control and adapt your thoughts, behaviours, and the way you feel based on your situation/environment and when you face obstacles)?
- Did the intervention decrease your levels of stress and burnout and increase your level of well-being? Please explain and provide specific examples.
- Tell me about your experience with journaling. Is this something that you have continued on your own and anticipate pursuing? Did it influence the way in which you reflected and learned from the intervention? If so, how?
- What are your overall impressions of the intervention? What are the biggest lessons you take from this process?
- Do you feel these lessons will help you in your future career as an athlete? As a student? Explain.
- Would you have changed anything in the intervention process?
- Is there anything you would like to add?
- Thank you so much for participating in this study!

Daily Profile Worksheet

Date: _____



Reflections / Lessons Learned

Appendix I**Daily Reflection Worksheet**

1. To what extent have you been able to feel, think, and behave the way you wanted today? Explain.

On a scale of 0-100%, how would you rate your ability to self-regulate today (i.e., exert control over your thoughts, feelings, and actions)?

0 10 20 30 40 50 60 70 80 90 100_____

2. What was your experience of stress and/or burnout today (e.g., felt emotionally drained, detached from others, overwhelmed, out of control, imbalanced, ineffective, cynical?). How have you attempted to manage your stress? Please explain.

On a scale of 0-100%, how would you rate your level of stress today?

0 10 20 30 40 50 60 70 80 90 100

3. What was your experience of well-being today (e.g., felt positive, energized, accomplished, supported, in control of your environment, independent, connected to others)?

On a scale of 0-100%, how would you rate your level of well-being today?

0 10 20 30 40 50 60 70 80 90 100

4. Overall comments and lessons learned

Appendix J**Athlete Burnout Questionnaire (Raedeke & Smith, 2001)**

When participating in sport, at what frequency do you feel the way the statements below describe.

1. I'm accomplishing many worthwhile things in (sport).
1 – almost never 2- rarely 3- sometimes 4- frequently 5- almost always
2. I feel so tired from my training that I have trouble finding energy to do other things.
1 – almost never 2- rarely 3- sometimes 4- frequently 5- almost always
3. The effort I spend in (sport) would be better spent doing other things.
1 – almost never 2- rarely 3- sometimes 4- frequently 5- almost always
4. I feel overly tired from my (sport) participation.
1 – almost never 2- rarely 3- sometimes 4- frequently 5- almost always
5. I am not achieving much in (sport).
1 – almost never 2- rarely 3- sometimes 4- frequently 5- almost always
6. I don't care as much about my (sport) performances as I used to.
1 – almost never 2- rarely 3- sometimes 4- frequently 5- almost always
7. I am not performing to my ability in (sport).
1 – almost never 2- rarely 3- sometimes 4- frequently 5- almost always
8. I feel "wiped out" from (sport).
1 – almost never 2- rarely 3- sometimes 4- frequently 5- almost always
9. I'm not into (sport) like I used to be.
1 – almost never 2- rarely 3- sometimes 4- frequently 5- almost always
10. I feel physically worn out from (sport).
1 – almost never 2- rarely 3- sometimes 4- frequently 5- almost always
11. I feel less concerned about being successful in (sport) than I used to.
1 – almost never 2- rarely 3- sometimes 4- frequently 5- almost always
12. I am exhausted by the mental and physical demands of (sport).
1 – almost never 2- rarely 3- sometimes 4- frequently 5- almost always
13. It seems that no matter what I do, I don't perform as well as I should (in sport).
1 – almost never 2- rarely 3- sometimes 4- frequently 5- almost always
14. I feel successful at (sport).
1 – almost never 2- rarely 3- sometimes 4- frequently 5- almost always
15. I have negative feelings toward (sport).
1 – almost never 2- rarely 3- sometimes 4- frequently 5- almost always

**Traduction Canadienne-Française du Athlete Burnout Questionnaire
(Perreault, S., Gaudreau, P., Lapointe, M-C., & Lacroix, C., 2007)**

Note: The French version of the Athlete Burnout Questionnaire, demographic questionnaire, and consent form were distributed as part of the screening phase given that it was anticipated that some of the participants may have been francophone. All participants responded in English, thus only the English version of the documents for the intervention phase were used.

Lorsque tu pratiques ton sport, à quelle fréquence te sens-tu de la façon décrite dans chacun des énoncés suivants?

	1	2	3	4	5
	Presque jamais	Rarement	Quelquefois	Souvent	Presque toujours
1. J'accomplis plusieurs choses qui en valent la peine dans ce sport.	1	2	3	4	5
2. Je suis si fatigué-e par mes entraînements que j'ai de la difficulté à trouver de l'énergie pour faire autre chose.	1	2	3	4	5
3. L'effort que je déploie dans ce sport devrait plutôt être consacré à faire autre chose.	1	2	3	4	5
4. Je ressens une fatigue excessive à cause de ma participation à ce sport.	1	2	3	4	5
5. Je n'accomplis pas grand chose dans ce sport.	1	2	3	4	5
6. J'attache moins d'importance à ma performance sportive qu'auparavant.	1	2	3	4	5
7. Mes performances ne sont pas à la hauteur de mes habiletés dans ce sport.	1	2	3	4	5
8. Je me sens complètement brûlé-e à cause de la pratique de ce sport.	1	2	3	4	5
9. Je ne suis plus aussi impliqué-e dans ce sport qu'auparavant.	1	2	3	4	5
10. Je me sens physiquement épuisé-e par ce sport.	1	2	3	4	5
11. J'attache moins d'importance à l'idée de réussir dans ce sport qu'auparavant.	1	2	3	4	5
12. Je suis épuisé-e par les exigences mentales et physiques de ce sport.	1	2	3	4	5
13. Il me semble que quoique je fasse dans ce sport, je ne suis pas aussi performant-e que je devrais l'être.	1	2	3	4	5
14. Je sens que j'ai du succès dans ce sport.	1	2	3	4	5
15. J'ai des sentiments négatifs vis-à-vis de ce sport.	1	2	3	4	5

Appendix K

Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983)

The questions in this scale ask you about your feelings and thoughts **during the last month**. In each case, you will be asked to indicate by circling *how often* you felt or thought a certain way.

0 = Never 1 = Almost Never 2 = Sometimes 3 = Fairly Often 4 = Very Often

1. In the last month, how often have you been upset because of something that happened unexpectedly?0 1 2 3 4
2. In the last month, how often have you felt that you were unable to control the important things in your life?0 1 2 3 4
3. In the last month, how often have you felt nervous and “stressed”? 0 1 2 3 4
4. In the last month, how often have you dealt successfully with irritating life hassles?0 1 2 3 4
5. In the last month, how often have you felt you were effectively coping with important changes that were occurring in your life?0 1 2 3 4
6. In the last month, how often have you felt confident about your ability to handle your personal problems?0 1 2 3 4
7. In the last month, how often have you felt that things were going your way?0 1 2 3 4
8. In the last month, how often have you found that you could not cope with all the things that you had to do?0 1 2 3 4
9. In the last month, how often have you been able to control irritations in your life?0 1 2 3 4
10. In the last month, how often have you felt that you were on top of things?0 1 2 3 4
11. In the last month, how often have you been angered because of things that happened that were outside of your control?0 1 2 3 4
12. In the last month, how often have you found yourself thinking about things that you have to accomplish?0 1 2 3 4
13. In the last month, how often have you been able to control the way you spend your time?0 1 2 3 4
14. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?0 1 2 3 4

Appendix L

The Warwick-Edinburgh Mental Well-Being Scale (WEMWBS, Tennant et al., 2007)

Below are some statements about feelings and thoughts.

Please tick the box that best describes your experience of each over the last two weeks.

Statements	None of the time	Rarely	Some of the time	Often	All of the time
I've been feeling optimistic about the future	1	2	3	4	5
I've been feeling useful	1	2	3	4	5
I've been feeling relaxed	1	2	3	4	5
I've been feeling interested in other people	1	2	3	4	5
I've had energy to spare	1	2	3	4	5
I've been dealing with problems well	1	2	3	4	5
I've been thinking clearly	1	2	3	4	5
I've been feeling good about myself	1	2	3	4	5
I've been feeling close to other people	1	2	3	4	5
I've been feeling confident	1	2	3	4	5
I've been able to make up my own mind about things	1	2	3	4	5
I've been feeling loved	1	2	3	4	5
I've been interested in new things	1	2	3	4	5
I've been feeling cheerful	1	2	3	4	5

Appendix M

Short Version of the Self-Regulation Questionnaire (Carey, Neal, & Collins, 2004; adapted from SQR, Brown, Miller, & Lawendowski, 1999)

Please answer the following questions by circling the response that best describes how you are. There are no right or wrong answers. Work quickly and don't think too long about your answers.

Strongly Disagree	Disagree	Uncertain Or Unsure	Agree	Strongly Agree	
1	2	3	4	5	
1. I usually keep track of my progress toward my goals.	1	2	3	4	5
2. I have trouble making up my mind about things.	1	2	3	4	5
3. I get easily distracted from my plans.	1	2	3	4	5
4. I don't notice the effects of my actions until it's too late.	1	2	3	4	5
5. I am able to accomplish goals I set for myself.	1	2	3	4	5
6. I put off making decisions.	1	2	3	4	5
7. It's hard for me to notice when I've "had enough" (alcohol, food, exercise).	1	2	3	4	5
8. If I wanted to change, I am confident that I could do it.	1	2	3	4	5
9. When it comes to deciding about a change, I feel overwhelmed by the choices.	1	2	3	4	5
10. I have trouble following through with things once I've made up my mind to do something.	1	2	3	4	5
11. I don't seem to learn from my mistakes.	1	2	3	4	5
12. I can stick to a plan that's working well.	1	2	3	4	5
13. I usually only have to make a mistake one time in order to learn from it.	1	2	3	4	5
14. I have personal standards, and try to live up to them.	1	2	3	4	5
15. As soon as I see a problem or challenge, I start looking for possible solutions.	1	2	3	4	5
16. I have a hard time setting goals for myself.	1	2	3	4	5

- | | |
|--|-----------|
| 17. I have a lot of willpower. | 1 2 3 4 5 |
| 18. When I'm trying to change something, I pay a lot of attention to how I'm doing. | 1 2 3 4 5 |
| 19. I have trouble making plans to help me reach my goals. | 1 2 3 4 5 |
| 20. I am able to resist temptation. | 1 2 3 4 5 |
| 21. I set goals for myself and keep track of my progress. | 1 2 3 4 5 |
| 22. Most of the time I don't pay attention to what I'm doing. | 1 2 3 4 5 |
| 23. I tend to keep doing the same thing, even when it doesn't work. | 1 2 3 4 5 |
| 24. I can usually find several different possibilities when I want to change something. | 1 2 3 4 5 |
| 25. Once I have a goal, I can usually plan how to reach it. | 1 2 3 4 5 |
| 26. If I make a resolution to change something, I pay a lot of attention to how I'm doing. | 1 2 3 4 5 |
| 27. Often I don't notice what I'm doing until someone calls it to my attention. | 1 2 3 4 5 |
| 28. I usually think before I act. | 1 2 3 4 5 |
| 29. I learn from my mistakes. | 1 2 3 4 5 |
| 30. I know how I want to be. | 1 2 3 4 5 |
| 31. I give up quickly. | 1 2 3 4 5 |

Appendix N

Table 2. Data Collection Phases and Procedures

Data Collection Phases and Procedures			
	Timeline	Instruments / Procedures	Goals
Phase 1: Screening	1 month after onset of athletic season (Early October)	• Athlete Burnout Questionnaire • Demographic Questionnaire	• Determine prevalence of burnout • Identify eligible participants for Phase 2
Phase 2: Pre-intervention	2-3 weeks prior to intervention (Mid October)	• Semi-structured interview (45-60 minutes) • Self-report questionnaires (stress, well-being, self-regulation capacity)	• Build rapport, obtain background information, discuss intervention concepts • Obtain baseline measures
Intervention	Duration of athletic season (End of October to Early March)	• 7-9 bi-weekly feel-based, person-centered self-regulation intervention sessions (40-60 minutes) informed by frameworks and participant journaling • Self-report questionnaires (stress, burnout, well-being, self-regulation capacity) at mid-point and end of intervention	• Learn to self-regulate in order to alleviate stress and burnout symptoms and increase well-being • Obtain measures to determine if any changes occurred
Post-intervention	1 month following intervention (End of March to Early April)	• Semi-structured interview (45-60 minutes) • Self-report questionnaires (stress, well-being, self-regulation capacity)	• Explore experiences and lessons learned • Obtain final measures to determine if any changes occurred

Appendix O

Consent Form (Screening Phase)

Title of study: IMPLEMENTATION OF A FEEL-BASED SELF-REGULATION INTERVENTION WITH UNIVERSITY STUDENT-ATHLETES TO ADDRESS STRESS, BURNOUT, AND WELL-BEING

Researchers: Nicole Dubuc-Charbonneau, Ph.D (cand)., and Natalie Durand-Bush, PhD, School of Human Kinetics, Faculty of Health Sciences, University of Ottawa.

Invitation: I am invited to participate in a study conducted by Nicole Dubuc-Charbonneau and Natalie Durand-Bush as part of Nicole Dubuc-Charbonneau's doctoral thesis research.

Purpose of study: The purpose of this study is to examine the process and the effects of a self-regulation intervention designed to reduce stress and burnout and promote well-being in university student-athletes.

Participation: My participation in this first phase of the study will consist of completing a short demographic questionnaire as well as a sport stress-based questionnaire. Completing the questionnaires should take between 10 to 15 minutes. I may also be invited to take part in the second phase of the research at which point I will have the opportunity to read and sign a second, more detailed consent form.

Risks: There is very minimal risk involved in this study and I am free to withdraw at any time without negative consequence. One possible risk is that I may experience discomfort when reflecting on stressful experiences in sport. However, the information that I choose to share is entirely up to me and I am free to leave some or all of the questions blank. I know that I can contact the researchers during the study to address any questions or concerns I may have.

Benefits: There are several potential benefits from participating in this study. First, by reflecting on and sharing information about sport stressors that I encounter as an athlete and how I feel in my sport environment, I may increase my self-awareness and knowledge of ways I am able to manage my thoughts, behaviours, and how I feel in order to optimize my well-being and effectiveness as an athlete. Secondly, this study will benefit university student-athletes in general by increasing understanding of the pressures that we, as a population, face on a day-to-day basis. This knowledge will lead to the development of future interventions to help university student-athletes manage academic and sport-related demands more effectively to not only enhance their well-being and performance but also to reduce stress and prevent burnout.

Anonymity and confidentiality: The information I will share in this study will remain strictly anonymous and confidential. I will be assigned a code and any information that could reveal my identity in the questionnaires will be excluded when publishing scientific articles or presenting at conferences. All printed documents will be stored in a locked filing cabinet in Dr. Durand-Bush's laboratory at the University of Ottawa for a period of five years, after which they will be destroyed. Any electronic document will be saved on the principal investigator's computer and she will be the only one able to access these documents.

If I am eligible to take part in the second phase of the study, I have the choice to be contacted by email, for which no specific security measures will be taken, and thus safety of information can not be guaranteed or by regular mail at which point I will send my response back to the researcher in the self-addressed stamped envelope provided.

Voluntary participation: My participation in this study is completely voluntary. I may withdraw from the study at any time and/or refuse to answer questions without any negative consequence. If I chose to withdraw from the study, the data collected up until that point will be securely stored as described above or destroyed if that is my preference. I may complete the questionnaires in either English or French based on my preferred language.

Consent. I, _____, accept to participate in this study conducted by Nicole Dubuc-Charbonneau (PhD can) and Natalie Durand-Bush (PhD) from the School of Human Kinetics, Faculty of

Health Sciences, University of Ottawa. I also accept that the anonymous results of this study could be published in a scientific article and presented at conferences.

For any additional information regarding this study, I may contact the researchers. Any information requests or complaints about the ethical conduct of the project may be addressed with the Protocol Officer for Ethics in Research, Tabaret Hall, 550 Cumberland Street, Room 159, Ottawa, ON, K1N 6N5, tel.: 613-562-5841, e-mail: ethics@uottawa.ca.

Please refrain from contacting me if I am eligible for the second phase of the study ____

I am willing to be contacted to participate in the second phase of the study ____

I would like to be contacted via:

____ (Hard copy through postal mail) Address: _____

____ (E-mail) Email address: _____

There are two copies of the consent form, one for myself that I may keep and one for the researcher.

Researcher's signature: _____ Date: _____

Participant's signature: _____ Date: _____

Should you have any questions regarding this research project, please contact

Dr. Natalie Durand-Bush:
Tel. number:
Fax number:
E-mail address:
School of Human Kinetics
Faculty of Health Sciences
University of Ottawa

Nicole Dubuc-Charbonneau:
Tel. number:
Fax number:
E-mail address:
School of Human Kinetics
Faculty of Health Sciences
University of Ottawa

Formulaire de consentement (Phase de sélection)

Note: The French version of the consent form, demographic questionnaire and Athlete Burnout Questionnaire were distributed as part of the screening phase given that it was anticipated that some of the participants may have been francophone. All participants responded in English, thus only the English version of the documents for the intervention phase were used.

Titre de l'étude: EXAMINATION DES EFFETS D'UNE INTERVENTION D'AUTO-RÉGULATION SUR LE NIVEAU DE STRESS, D'ÉPUISEMENT ET DE BIEN-ÊTRE D'ÉTUDIANTS-ATHLÈTES UNIVERSITAIRES.

Chercheuses: Nicole Dubuc-Charbonneau, PhD (cand) et Natalie Durand-Bush, PhD, École des sciences de l'activité physique, Faculté des sciences de la santé, Université d'Ottawa.

Invitation. Je suis invitée à participer à la recherche nommée ci haut qui est menée par Nicole Dubuc-Charbonneau et Natalie Durand-Bush dans le cadre d'un projet de thèse de doctorat de Nicole Dubuc-Charbonneau.

But de l'étude. Le but de l'étude est d'examiner les niveaux de stress, d'épuisement et de bien-être d'étudiants-athlètes universitaires ainsi que les effets d'une intervention d'auto-régulation sur ces niveaux.

Participation. Ma participation à cette étude consiste à compléter un court questionnaire démographique et un questionnaire portant sur le stress de l'environnement sportif. Il me faudra environ 10 à 15 minutes pour compléter les deux questionnaires. Je peux aussi être invité(e) à participer à une deuxième partie de l'étude (i.e., intervention) et si oui, j'aurai l'opportunité de lire et de signer un deuxième formulaire de consentement plus détaillé.

Risques. Les risques associés avec cette étude son minimales et je suis libre de me retirer en tout temps sans aucune conséquence négative. Il est possible que je ressente un inconfort psychologique ou émotionnel lorsque je réfléchis à des situations stressantes auxquelles je fais face dans mon environnement sportif. Toutefois, je choisis l'information que je veux partager et je suis libre de ne pas répondre à certaines ou toutes les questions. Je sais que je peux contacter les chercheuses en tout temps pendant l'étude si j'ai des questions ou des soucis.

Bienfaits. Il y a plusieurs bienfaits associés à cette étude. Premièrement, en réfléchissant et en partageant de l'information au sujet des demandes sportives et comment je me sens dans mon environnement sportif, je peux améliorer mon niveau de conscience de soi et mes connaissances par rapport aux façons dont je peux gérer mes pensées, comportements, et comment je me sens afin d'optimiser mon bien-être et mon efficacité comme étudiant-athlète. Deuxièmement, cette étude va bénéficier les étudiants-athlètes universitaires en général, en améliorant la compréhension des pressions, que nous, comme population, ressentons quotidiennement. Ces connaissances pourront aider au développement de futures interventions afin d'aider les étudiants-athlètes universitaires à gérer les demandes académiques et sportives plus efficacement afin d'améliorer leur bien-être et leur performance et de réduire leur niveau de stress et d'épuisement.

Confidentialité et anonymat. J'ai l'assurance des chercheuses que les informations que je partagerai via les questionnaires seront gardées strictement anonymes et confidentielles. Les chercheuses utiliseront un code de sorte à ce que toute information qui pourrait compromettre mon identité n'apparaîtra dans aucun document. Toute information électronique ne sera sauvegardée que sur l'ordinateur personnel de la chercheuse principale. Seule la chercheuse principale aura accès à cette information.

Les documents imprimés seront barrés à clé dans le laboratoire de Dr. Durand-Bush à l'Université d'Ottawa et seront détruits après une période de cinq ans. Si je suis éligible à participer à la deuxième phase de cette étude, j'ai le choix d'être contacté(e) par courriel, sauf qu'aucune mesure de sécurité additionnelle sera prise et alors la sécurité ne peut pas être garantie ou je peux choisir d'être contacté(e) par la poste et je pourrai envoyer ma réponse par la poste dans l'enveloppe pré-affranchie.

Participation volontaire. Ma participation à cette étude est volontaire et je suis libre de me retirer en tout temps, et/ou refuser de répondre à certaines questions, sans subir de conséquences négatives. Si je choisis de me retirer de l'étude, les données recueillies jusqu'à ce moment seront entreposées de façon sécuritaire comme décrit ci-dessus ou détruites si c'est ce que je préfère. Je peux compléter les questionnaires en français ou en anglais, d'après ma langue préférée.

Acceptation. Je, _____, accepte de participer à cette étude menée par Nicole Dubuc-Charbonneau (PhD can) et Natalie Durand-Bush (PhD) de l'École des sciences de l'activité physique, Faculté des sciences de la santé, Université d'Ottawa. J'accepte aussi que les données anonymes de l'étude soient publiées dans une revue scientifique et présentées à des conférences.

Pour tout renseignement additionnel concernant cette étude, je peux communiquer avec les chercheuses. Pour tout renseignement sur les aspects éthiques de cette étude, je peux m'adresser au Responsable de l'éthique en recherche, Université d'Ottawa, Pavillon Tabaret, 550, rue Cumberland, salle 159, Ottawa, ON K1N 6N5. Tél.: (613) 562-5841
Courriel : ethics@uottawa.ca.

S.v.p. évitez de me contacter si je suis éligible pour la deuxième phase de l'étude ☐

J'accepte d'être contacté(e) afin de participer à la deuxième phase de l'étude ☐

J'aimerais être contacté(e) via:

☐ (Lettre imprimée par la poste)

Adresse postale: _____

☐ (Courriel)

Adresse courriel: _____

Il y a deux copies du formulaire de consentement, dont une copie que je peux garder.

Signature du participant: _____ Date: _____

Signature de la chercheuse: _____ Date: _____

Si vous avez des questions face à ce projet de recherche, s'il-vous-plaît communiquer avec

Dr. Natalie Durand-Bush:

No. téléphone:

Fax

Courriel:

École des sciences de l'activité physique

Faculté des sciences de la santé

Université d'Ottawa

Nicole Dubuc-Charbonneau:

No. téléphone:

Fax :

Courriel:

École des sciences de l'activité physique

Faculté des sciences de la santé

Université d'Ottawa

Appendix P**Demographic Questionnaire**

Age: _____

Gender: Male or Female

Academic year: _____ (1st, 2nd, 3rd, 4th, Masters, PhD)

Program of study: _____

Academic Status: Full-time or Part-time

University sport played: _____

Number of years participating in university sport (CIS): _____

Do you participate in competitive sport outside the school environment? If so, which sports?

Questionnaire Démographique

Âge : _____

Genre : Homme ou Femme

Année d'étude : _____ (1^{ière}, 2^{ième}, 3^{ième}, 4^{ième}, Maîtrise, Doctorat)

Programme d'étude : _____

Statut scolaire : Plein temps ou Temps partiel

Sport joué au niveau universitaire : _____

Nombre d'années comme participant dans un sport universitaire (CIS) : _____

Participes-tu à un sport compétitif à l'extérieur du milieu académique? Si oui, lesquels?

Appendix Q

Consent Form (Intervention Phase)

Title of study: IMPLEMENTATION OF A FEEL-BASED SELF-REGULATION INTERVENTION WITH UNIVERSITY STUDENT-ATHLETES TO ADDRESS STRESS, BURNOUT, AND WELL-BEING

Researchers: Nicole Dubuc-Charbonneau, Ph.D (cand)., and Natalie Durand-Bush, PhD, School of Human Kinetics, Faculty of Health Sciences, University of Ottawa.

Invitation: I am invited to participate in a study conducted by Nicole Dubuc-Charbonneau and Natalie Durand-Bush as part of Nicole Dubuc-Charbonneau's doctoral thesis research.

Purpose of study: The purpose of this study is to examine the process and the effects of a self-regulation intervention designed to reduce stress and burnout and promote well-being in university student-athletes.

Participation: My participation in this second phase of the study will consist of taking part in an individual, feel-based self-regulation intervention. If I am willing to be part of this phase, I will be asked to participate for the duration of my athletic season:

- The intervention will be broken down as follows:

(Pre-intervention)

- One individual interview (approximately 60 minutes)
- Three self-report questionnaires (10-15 minutes)

(Intervention)

- 7 to 9 individual sessions (approximately 40-60 minutes)
- Four self-report questionnaires (at mid-intervention and at the end of the intervention) (10-15 minutes)

(Post-intervention)

- One individual interview (approximately 60 minutes)
- Four self-report questionnaires (10-15 minutes)

In addition, by taking part in the intervention, I will be asked to complete a journal and read my coded interview/intervention session transcripts in order to verify the information I provided and make any necessary changes.

Anonymity and confidentiality: The interviews and intervention sessions will be audiotaped, and scheduled at a time and at a location on campus that is convenient to me as well as the researcher. The information I will share throughout the study will remain strictly confidential. Audiotapes, questionnaires and transcripts of the interviews/intervention sessions will be stored in a locked filing cabinet in Dr. Durand-Bush's laboratory at the University of Ottawa for a period of five years, after which point all electronic and printed documents will be destroyed. Only the research team will have access to the codes and data. Anonymity in the study will be assured by assigning a pseudonym to my file so that my name will not appear on any transcript. If I choose to participate, the information that I share may be used for the purposes of publication in scientific journals. Furthermore, I may be quoted in presentations or publications provided I have given my permission below, however, my anonymity is guaranteed. I will receive, by providing a mailing address below, a copy of my coded interview/intervention session transcripts for verification.

Risks: There is a minimal risk involved in this study and I am free to withdraw at any time without negative consequence. One possible risk is that I may experience discomfort when reflecting on stressful situations and on how I feel. However, the information that I choose to share is entirely up to me, and no one will encourage me to discuss anything with which I am uncomfortable. In the occurrence that I am uncomfortable discussing a particular

topic during the intervention, I am free to ask the researcher to change topics or end the session. Should the researcher feel at any point that additional support would be beneficial or required, an appropriate referral will be made. I know that I can contact the researchers during the study to address any questions or concerns I may have.

Benefits: Many athletes have reported benefits from participating in previous self-regulation interventions as it has helped them become aware of how they feel and want to feel in sport and daily life, and develop strategies in order to improve their performance and well-being. Since the present study involves several intervention sessions, it could provide a valuable learning experience for me, and help me to become more aware and regulate how I feel in order to reduce stress and increase well-being.

Voluntary participation: My participation in this study is completely voluntary. I may withdraw from the study at any time and/or refuse to answer questions without any negative consequence. If I chose to withdraw from the study, the data collected up until that point will be securely stored as described above or destroyed if that is my preference.

Consent. I, _____, accept to participate in this study conducted by Nicole Dubuc-Charbonneau (PhD can) and Natalie Durand-Bush (PhD) from the School of Human Kinetics, Faculty of Health Sciences, University of Ottawa. I also accept that the results of this study including citations could be published in a scientific article and presented at conferences but that my name will not be mentioned at any time.

I understand that I am free to withdraw from the project at any time, including before or during the interviews and intervention sessions. I can also refuse to participate in any aspects of the study, withdraw shared information from the interviews/intervention sessions, and refuse to answer questions without any consequences or prejudice. My signature is given with the understanding that I do not have to give up any rights, that I have been informed of the requirements of the research, and that I agree to take part in this research project.

Please check one of the following options:

- ☐ I agree to be quoted but all personally identifying information shall be removed or altered and contents of the quote shall not be revelatory of my identity
- ☐ I do not wish to be quoted at all

For any additional information regarding this study, I may contact the researchers. Any information requests or complaints about the ethical conduct of the project may be addressed with the Protocol Officer for Ethics in Research, Tabaret Hall, 550 Cumberland Street, Room 159, Ottawa, ON, K1N 6N5, tel.: 613-562-5841, e-mail: ethics@uottawa.ca.

There are two copies of the consent form, one for myself that I may keep and one for the researcher.

Researcher's signature: _____ Date: _____

Participant's signature: _____ Date: _____

Should you have any questions regarding this research project, please contact

Dr. Natalie Durand-Bush:
Tel. number:
Fax number:
E-mail address:
School of Human Kinetics
Faculty of Health Sciences
University of Ottawa

Nicole Dubuc-Charbonneau:
Tel. number:
Fax number:
E-mail address:
School of Human Kinetics
Faculty of Health Sciences
University of Ottawa