

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

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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 postintervention 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, & Lavalley, 2007), self-doubt (Cresswell & Eklund, 2006; Lemyre, Hall, & Roberts, 2008), frustration (Cresswell & Eklund, 2006; Goodger, Gorely, Harwood, & Lavalley, 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, Gorely, Harwood, & Lavallee, 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, Jouper 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, 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 intervention. 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 intervention 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 Bonferroni 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 (Raedeker & 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, $\chi^2(5) = 12.130$, $p = .035$, 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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