Does it take three to tango?
Psychological need satisfaction and athlete burnout

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Athletes who feel autonomous, competent, and related to significant others in sport should experience lower levels of burnout than athletes whose basic psychological needs are being neglected (Ryan & Deci, 2002). Moreover, based on recent research by Sheldon and Nierwec (2006), lower levels of athlete burnout should also be observed when the three psychological needs (i.e., autonomy, competence, and relatedness) are simultaneously satisfied (i.e., a balance in need satisfaction) in sport. The present study tested these two hypotheses with 259 high school student-athletes attending a sports school. Results indicated that the satisfaction of each of the three basic psychological needs as well as the balance of need satisfaction was correlated negatively with athlete burnout. Regression analyses further demonstrated that the balance of need satisfaction made a significant contribution to prediction of athlete burnout over and above the significant contributions of each of the three needs. The present results are discussed in line with basic needs theory (Ryan & Deci, 2002) as well as the measurement of balance of need satisfaction.

Key words: Autonomy, Competence, Relatedness, Self-determination theory.

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Le “programme Sport-Études” is quite popular in the province of Quebec in Canada. The mission of this academic program is to help high school student-athletes strive for excellence in sport while going to school. Although academic success is the priority in this setting, scholastic schedules are constructed to help student-athletes take part in sport without hindering their studies. Also, different services such as tutoring, medical care, and counseling are offered to athletes in order to facilitate the conciliation of the demands of school and sport. Despite its popularity, very few studies have examined how student-athletes fare within such an environment. They are young, train hard, sport is a central part of their identity, and perhaps, are more likely to experience athlete burnout than youth in less intensive settings (Coakley, 1992).

Athlete burnout is a multidimensional phenomenon characterized by emotional and physical exhaustion, a reduced sense of accomplishment, as well as devaluation or cynicism, an operationalization supported through the development and validation of the Athlete Burnout Questionnaire (Raedeke & Smith, 2001). Although a number of models have been proposed to assist in understanding athlete burnout (Eklund & Cresswell, 2007), Deci and Ryan’s (1985, 1991) self-determination theory (SDT) has received increasing attention in recent years because researchers are now focusing their efforts on the motivational component of burnout (Raedeke, 1997). According to SDT, different types of motivation fall on a self-determination continuum ranging from amotivation to intrinsic motivation. Furthermore, self-determined motivations are believed to be associated with enhanced psychological functioning. More precisely, self-determined motivations should lead to positive consequences such as less athlete burnout whereas the non self-determined forms of motivation (especially amotivation) should be associated with negative consequences such as more athlete burnout.

To our knowledge, Gould, Udry, Tuffey, and Loehr (1996) were the first to find support for this particular postulate of SDT in that they demonstrated that burned out junior tennis players scored higher on amotivation than comparison players who were not burned out. Amotivation was also found to be positively related with athlete burnout by Raedeke and Smith (2001) for both senior age-group swimmers and college athletes. Furthermore, they also showed that intrinsic motivation was negatively associated with athlete burnout. Similar results have also been found with rugby players (Cresswell & Eklund, 2005a, 2005b, 2005c). More recently, Lemyre, Treasure, and Roberts (2006) uncovered that NCAA Division I swimmers whose motivation became less self-determined over the course of the season scored higher on athlete burnout than those whose motivation became more self-deter-
...er in the province of Que-
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...eting, scholastic schedules
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...immers whose motiva-
...the season scored higher
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...ined. While these results support the idea that self-determination is as-
...e associated with enhanced functioning (for a review, see Eklund & Cresswell, 2007),
... careful examination of the literature relying on SDT reveals that research
...et to evaluate how feelings of autonomy, competence, and relatedness
... associated with athlete burnout.

...ccording to basic needs theory, a mini-theory within SDT (Ryan &
...2002), the satisfaction of three basic psychological needs (i.e., auton-
...omacy, competence, and relatedness) is a prerequisite to psychological
...ment to and prevention of ill-being. More precisely, athletes who feel that
...they can initiate their own action, cope effectively with their sport environ-
...t, and securely connect with and feel understood by significant others in
...port should experience higher levels of well-being than athletes whose
...ical needs are being neglected. Support for such a proposition
...has been found in the sport domain by Gagné, Ryan, and Bargmann
...2003), who showed that daily need satisfaction in practice led to increased
...ell-being of female gymnasts. Moreover, using a cross-sectional design,
...both, Duda, and Ntoumanis (2004) demonstrated that the psychologi-
... and physical well-being of adolescent soccer and cricket players was
...ected by the level of satisfaction of the need for competence and, to a lesser
...ent, the need for autonomy. Finally, Reinboth and Duda (2006) also
...found evidence linking changes in need satisfaction for autonomy and rela-
...liness with changes in subjective vitality with a group of British university

...Based on the research linking need satisfaction with well-being, one
...ould expect greater levels of need fulfillment to be associated with less
...lete burnout, a form of ill-being in sport. Theory, research, and recent
...views on athlete burnout suggest that this line of reasoning is warranted
...(1986), Coakley (1992), and Raedeke (1997) identified lack of autonomy as
...mportant factor in explaining athlete burnout. Cresswell and Eklund
...(2006) also argued that the need for competence can be tied to a reduced
...sense of accomplishment, a key element of burnout (Raedeke, 1997; Raedeke
...(2001). In short, failing repetitively at one's sport should thwart
...one's need for competence. Finally, when athletes are less satisfied with the
...social support they are receiving (an indirect indication that the need for
...relatedness is not being satisfied), they report experiencing more athlete
...burnout (Raedeke & Smith, 2001, 2004). Similarly, when athletes perceive
...their coach negatively (another indirect indication that the need for related-
...ness is not being satisfied), they score higher on athlete burnout (Price &
Although past research has shown that there is a direct link between need satisfaction and well-being, sport studies have relied on additive effect models in which the contributions of the satisfaction of the needs for autonomy, competence, and relatedness have been assessed independently. However, athletes are likely to experience differing levels of satisfaction on each of the three needs. For instance, one athlete could feel somewhat supported by his coaches (i.e., moderate relatedness; 4 on a 7-point scale) during a period of performance setbacks (i.e., low competence; 2 on a 7-point scale) while feeling empowered and free to decide the course of actions to improve future performances (i.e., high autonomy; 6 on a 7-point scale). Alternatively, another athlete could feel moderately supported, competent, and autonomous (i.e., scores of 4 on all three 7-point scales). For both athletes the total need satisfaction score is identical (i.e., 12). However, the first athlete has a clear imbalance or within-person variability in the satisfaction of the three needs whereas the second athlete has a clear balance or within-person consistency in the satisfaction of the three needs. Hence, it remains to be determined whether the three needs should be equally satisfied in order to promote the highest levels of psychological adjustment.

To our knowledge, no research in the sport domain has examined the contribution of the balance of need satisfaction. However, Sheldon and Niemiec (2006) recently conducted a series of four studies to examine the balance of the three needs in the academic life-domain. They found that balance of need satisfaction accounted for a significant amount of variance in concurrent, prospective, and daily variations of subjective well-being and happiness. Balance of need satisfaction was also negatively associated with disruptive oppositional-defiant and impulsive behaviors. Furthermore, the association between balance of need satisfaction and subjective well-being remained significant after accounting for the effect of neuroticism. Despite these promising results, it remains to be examined whether the balance of need satisfaction is associated with athlete burnout. Additionally, whether the balance of the three needs can contribute to psychological adjustment, as indexed by athlete burnout, over and above the mere effect of the satisfaction of the needs for autonomy, competence, and relatedness, has not been examined. In line with the tenets of basic needs theory (Ryan & Deci, 2002), lower levels of athlete burnout should be observed when the three psychological needs are simultaneously satisfied in sport.

In summary, the purpose of this study was to examine two hypotheses stemming from SDT. More precisely, we tested the prediction that need satisfaction would be significantly and negatively associated with ill-being. To examine this hypothesis, we examined the link between need satisfaction and athlete burnout, predicting that taken individually, would be negative. We also tested whether burnout was associated with athlete burnout perceptions. Based on previous research, we hypothesized that greater athlete burnout perceptions were related to lower need satisfaction.

Method

Participants

A sample of 259 (190 male and 69 female) athlete-athletes, attending a sport training and competition programs, was selected (N = 19). Their mean age was 23.4 years (SD = 1.72 years).

Measures

Need satisfaction. A four-item version of the Basic Psychological Need Satisfaction Scale (Ryan & Deci, 2002; Blais, 1993). A sample item is: "I feel that my strengths and abilities are recognized by the head coach." The four items assessed perceived relatedness with the team, autonomy, competence, and relatedness. The scale ranged from 1 (not at all) to 7 (to a great extent).

Due to the lack of psychometric properties, a confirmatory factor analysis (CFA) was conducted to test the fit of the need satisfaction measure. Confirmatory factor analysis indicated a good fit (χ²/df = 3.34, CFI = 0.95, TLI = 0.94, RMSEA = 0.07, S. E. = 0.02), suggesting adequate fit of the model (Byrne, 1998).

1A complete list of sports included in the study can be found in the supplementary materials.
is a direct link between the two. Sheldon and Niemiec (2006) have suggested a model where the need for autonomous motivation is a mediator between the need for relatedness and the need for competence. This model is supported by the results of a study that found a positive correlation between autonomous motivation and the satisfaction of the need for relatedness and competence (Sheldon & Niemiec, 2006).

Athlete burnout, predicting that greater satisfaction of the three basic needs, taken individually, would be associated with lower athlete burnout perceptions. We also tested whether the balance of need satisfaction would be associated with athlete burnout over and above the level of satisfaction on the three needs. Based on recent research (Sheldon & Niemiec, 2006), we hypothesized that greater need satisfaction balance would relate to lower athlete burnout perceptions.

Method

Participants

A sample of 259 (190 males and 69 females) Canadian French-speaking high school student-athletes, attending a sports school in the province of Quebec, participated in this study. They trained an average of 13.5 hours a week (SD = 5.2) in various individual and team sports (N = 19). Their mean age was 14.8 years (SD = 1.5) and the average playing experience in their sport was 7.2 years (SD = 3.2).

Measures

Need satisfaction. A four-item scale (α = .69) was used to measure participants’ perceptions of autonomy in their sport (Blais & Vallerand, 1992). A sample item is: “I feel I am taking part in this sport because I want to”. A four-item scale (α = .90) was used to measure participants’ perception of competence in their sport (adapted to sport from Losier, Vallerand, & Blais, 1993). A sample item is: “I feel competent in this sport”. Finally, perception of relatedness with the head coach was measured using the five-item acceptance subscale (α = .90) of the Need for Relatedness Scale (adapted to sport from Richer & Vallerand, 1998). The following stem was used: “In general, with respect to my head coach, I feel...”. The items used to assess perceived relatedness with the head coach were: “supported”, “understood”, “listened to”, “safe”, and “valued”. All of the three basic needs items were completed using a 7-point scale ranging from 1 (not at all in agreement) to 7 (complete agreement).

Due to the lack of psychometric information on these measures in the realm of sport, a confirmatory factor analysis (CFA) was performed to examine the structural validity of the need satisfaction measure. Considering the multivariate non-normality of the data (Mardia coefficient of kurtosis = 41.37), the Satorra-Bentler rescaled chi-square (SB) and the robust standard error of parameter estimates provided in the EQS 6.1 software were used (Bentler, 1995). To assess overall fit of the model, conventional cut-offs of .90 were used for the NNFI and CFI (Hoyle, 1995). The RMSEA was also used where a value of .08 is believed to indicate adequate fit of the model to the data and values of .05 or less a good fit (Browne &

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1A complete list of sports included in the present study is available from the first author.
Results from a three-factor CFA model fell short of these criteria (SB\textsuperscript{2}x = 62, CFI = .88; NNFI = .85; RMSEA = .09). Nonetheless, the lack of fit could be explained by the redundancy between two items measuring relatedness (LM\textsuperscript{2}c (1) = 81.17, p < .001). "understood" and "listened to." Upon adding a correlation between the error terms of these two items, the model adequately fit the data (SB\textsuperscript{2}x = 61, CFI = .93; NNFI = .92; RMSEA = .06). All parameters in the revised model were significant (p < .05). Factor loadings ranged from .74 to .85 for relatedness, from .50 to .80 for autonomy, and from .78 to .86 for competence. The three scales were significantly correlated: relatedness and autonomy (\phi = .37), relatedness and competence (\phi = .41), and autonomy and competence (\phi = .70).

Balance of need satisfaction. To assess balance of need satisfaction, we used the method proposed by Sheldon and Niemiec (2006). They operationalized this construct as the sum of the absolute difference between each pair of psychological needs. The higher this sum, the less balanced one's satisfaction of needs is. In other words, a score of zero represents perfect balance whereas higher scores should be interpreted as lower balance of need satisfaction. To ease interpretation, these scores were reverse coded as in the study of Sheldon and Niemiec (2006) so that a score of zero represents greatest imbalance and higher scores represent greater balance of the three needs. In this sample, the reversed scores ranged from 0 to 10, with a mean score of 7.5.

Athlete Burnout. A French version of the Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001) was used to assess athlete burnout. The ABQ is a 13-item multidimensional measure of burnout composed of three five-item subscales measuring reduced sense of accomplishment (\alpha = .81; e.g. "It seems that no matter what I do, I don't perform as well as I should"), sport devaluation (\alpha = .86; "I have negative feelings toward my sport"), and emotional and physical exhaustion (\alpha = .91; "I feel so tired from my training that I have trouble finding energy to do other things"). Items are scored on a five-point Likert-type scale ranging from 1 (almost never) to 5 (almost always).

Because no previous study had assessed the psychometric properties of the French version of the ABQ, we tested the factor structure and the construct validity of the scale using the participants described earlier as well as two other samples of high school student-athletes (N = 613; 407 males, 206 females, and one failing to report gender; M age = 14.6 years, SD = 1.5). A CFA was performed to examine the structural validity of the French version of the ABQ. Considering the multivariate non-normality of the data (Mardia coefficient of kurtosis = 79.32), the Satorra-Bentler rescaled chi-square (SB\textsuperscript{2}x) and the robust standard error of parameter estimates were used. The three-factor model provided a good fit to the data (SB\textsuperscript{2}x (87) = 212.61, p < .001; CFI = .95; NNFI = .93; RMSEA = .05). All parameters in the hypothesized model were significant (p < .05). Factor loadings ranged from .47 to .70 for reduced sense of accomplishment, from .70 to .81 for emotional/physical exhaustion, and from .51 to .79 for sport devaluation. The correlations between the three factors were similar to the ones reported by Raedeke and Smith (2001). More precisely, devaluation strongly correlated with reduced sense of accomplishment (\phi = .69) and moderately correlated with emotional/physical exhaustion (\phi = .33). The correlation between reduced sense of accomplishment and emotional/physical exhaustion was also moderate in magnitude (\phi = .35).

Two alternative models that improved the fit to the data. A one-factor model (AB\textsuperscript{2}x (8) = 1108.27, p < .001; CFI = .56; NNFI = .52; RMSEA = .09) than the three-factor model (\alpha = .90; r = .29 to .60 and \rho = .23 to .33), as well as signifying a game (Lasnier & Lassard, 2001). Using the sample employed for all three components of burnout (ICR = .63, sport devaluation = .69). In short, the psychometric properties of the French version (Raedeke & Smith, 2001) and the athlete burnout with high school student-athletes.

PROCEDURES

Following approval by a human research ethics committee, participation in the study was voluntary and informed consent was sought from students to participate or not in the study. Students who agreed to participate were instructed to complete the questionnaire.

Data Analysis

Pearson correlations were computed between components of athlete burnout as well as the balance of need satisfaction and the sample used to test our hypotheses of student-athletes' burnout and satisfaction. The two factors were formed on the total burnout score.
Support of these criteria (SBq²(62) = .91) was achieved; nonetheless, the lack of fit could have been due to an underestimation of relatedness (LMQ²(1) = 25.54). Thus, a correlation between the three factors was hypothesized. In the revised model, the loadings were significantly correlated: identity (φ = .41), and autonomy (φ = .39). To test the construct validity of the French version of the ABQ, we used the method proposed by Sheldon and Niemiec (1995) and higher scores represent less need satisfaction. To validate the French version of the ABQ, a 1-step model fitting procedure was adopted. The ABQ Questionnaire (ABQ; Champlin et al., 1988) is a 15-item multidimensional scale. The SBq²(61) = 1.09.77, p < .001, in the revised model were significantly correlated: identity (φ = .41), and autonomy (φ = .39). To test the construct validity of the French version of the ABQ, correlations between the components of athlete burnout and theoretically-related constructs were performed using student-athletes from the other two samples. Burnout dimensions were significantly (ps < .01) and inversely related to enjoyment (Scanlan, Carpenter, Schmidt, Simons, & Keele, 1993; α = .90; r = -.29 to -.60) and social support (Sarason, Sarason, Shearin, & Pierce, 1987; α = .87; r = -.23 to -.33), as well as significantly and positively associated with worrying prior to or during a game (LaRue & Lessard, 1994; α = .86; r = .36 to .56).

Using the sample employed in the present study, adequate test-retest values were found for all three components of burnout over a period of 5 weeks: reduced sense of accomplishment (ICR = .63), sport devaluation (ICR = .71), and physical/emotional exhaustion (ICR = .69). In short, the psychometric results presented above replicate past research on burnout (Raecke & Smith, 2001) and support the use of the French version of the ABQ to evaluate athlete burnout with high school student-athletes attending a sports school.

**Procedures**

Following approval by a human subjects research committee, standard procedures for the protection of research participants were followed. Permission to undertake this study was granted by the school and a letter was addressed to the parents in order to explain the purpose of the study and obtain their consent. The student-athletes were informed that they were free to participate or not in the study and that they could forgo completing the questionnaire without penalty. Assenting student-athletes completed the measures in a classroom setting. They were instructed to complete the various scales with their own sport in mind.

**Data Analysis**

Pearson correlations were calculated to examine the relationship between the components of athlete burnout as well as a composite score of athlete burnout with need satisfaction and the balance of need satisfaction. Descriptive statistics were also computed to describe the sample used to test our two hypotheses. Hierarchical regression analyses were performed on the total burnout score and the three components of burnout, respectively.

Two alternative models were tested in order to verify if the three-factor model provided the best fit to the data. A one-factor model provided a poor fit to the data (SBq²(90) = 1108.27, p < .001; CFI = .56; NNFI = .48; RMSEA = .14) and fit the data significantly worse than the three-factor model (SBq²(3) = 374.16, p < .05). Due to the moderately large correlation between devaluation and reduced sense of accomplishment, in the other alternative model items from these two components of burnout were combined into one latent variable and a two-factor model was tested. Although this model fit the data better than the one-factor model (SBq²(1) = 133.39, p < .05), it nevertheless provided a worse fit to the data than the a priori three-factor model (SBq²(89) = 355.25, p < .001; CFI = .88; NNFI = .86; RMSEA = .07; SBq²(2) = 121.73, p < .05).

The exact N for this test-retest was 232.
Results

BIVARIATE ASSOCIATIONS OF NEED SATISFACTION, BALANCE OF NEED SATISFACTION, AND BURNOUT

A first goal was to examine the correlations of athlete burnout with need satisfaction and the balance of need satisfaction (see Table I). As was found in previous research, psychological needs were moderately correlated with each other (Sheldon & Niemiec, 2006). Subscales of burnout were also positively inter-correlated, thus confirming the idea that athlete burnout is a tridimensional syndrome (Raecke & Smith, 2001). As expected, the satisfaction of each of the three needs was correlated negatively with the total burnout score and with the three components of athlete burnout. Of particular interest, the balance of need satisfaction was negatively associated with the total burnout score and with the three components of athlete burnout.

![Table I](image)

<table>
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<tbody>
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<td>1. Autonomy</td>
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<td>2. Competence</td>
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<td>3. Relatedness</td>
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<td>.74**</td>
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<td>5. Reduced sense of accomplishment</td>
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<td>6. Devaluation</td>
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<td>7. Exhaustion</td>
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<td>8. Total burnout</td>
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<td>Mean</td>
<td>6.16</td>
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<tr>
<td>SD</td>
<td>0.81</td>
<td>0.93</td>
<td>1.28</td>
<td>1.94</td>
<td>0.59</td>
<td>0.69</td>
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</table>

Notes. **p < .01, *p < .05.

UNIQUE PREDICTION OF BURNOUT BY NEED SATISFACTION BALANCE

To examine the incremental effect of balance of need satisfaction on burnout, four hierarchical regression analyses were performed on the total burnout score and the three components of burnout, respectively. The satisfaction of autonomy, competence, and relatedness were entered as a block at the first step and then the balance of need satisfaction was entered at the second step. As shown in Table II, in step 1 (F (3, 253) = 54.73, p < .01), using the composite score of athlete burnout as a dependent variable, relatedness, competence, and autonomy had standardized coefficients of -.28, -.22, and -.27, respectively (all ps < .01, -.19, p < .05) made a significant and unique contribution above and above the significant predictors of reduced sense of accomplishment (p = .014, p < .05). Using relatedness as the variable, relatedness (β = -.20) made a significant predictor in step 2 where the balance of need satisfaction (β = -.19, p < .01) was a significant predictor of reduced sense of accomplishment (β = .018, p < .01). For the development of the relatedness (β = -.19) to make a significant predictor where the balance of need satisfaction uniquely predict devaluation (β = -.17, p < .01) analysis where the exhaustion analysis related to the balance of need satisfaction as the significant predictor at step 1 (F (3, 253) = 54.73, p < .01), a significant predictor of burnout (β = -.17, p < .05) made a significant and unique contribution to the prediction of burnout.

Discussion

In line with basic need satisfaction theory, this study confirms the prediction that greater need satisfaction leads to lower perceptions of burnout. The finding is consistent with the notion that need satisfaction is associated with lower burnout (Sheldon & Niemiec, 2003; Reinboth & Duda, 2003).
Table II
Need Satisfaction and Balance of Need Satisfaction Predicting Total Burnout and Specific Components of Burnout

<table>
<thead>
<tr>
<th></th>
<th>Total Burnout</th>
<th>Reduced Accomplishment</th>
<th>Devaluation</th>
<th>Exhaustion</th>
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<tr>
<td></td>
<td>( \Delta R^2 )</td>
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<td><strong>Step 1</strong></td>
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<tr>
<td>Relatedness</td>
<td>-.28**</td>
<td>-.28**</td>
<td>-.19**</td>
<td>-.18*</td>
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<tr>
<td>Competence</td>
<td>-.22**</td>
<td>-.47**</td>
<td>.04</td>
<td>-.04</td>
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<tr>
<td>Autonomy</td>
<td>-.27**</td>
<td>.01</td>
<td>.45*</td>
<td>-.14*</td>
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<tr>
<td><strong>Step 2</strong></td>
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<tr>
<td>Balance of need satisfaction</td>
<td>.01*</td>
<td>.19*</td>
<td>.22**</td>
<td>.04</td>
</tr>
</tbody>
</table>

Notes. **p < .01, *p < .05, *p < .08.

Discussion

In line with basic needs theory (Ryan & Deci, 2002), we tested the prediction that greater need satisfaction would be associated with lower athlete burnout perceptions. Correlational analyses supported this hypothesis. This finding is consistent with past research showing that experiencing greater need satisfaction is associated with greater well-being in sport (Gagné et al., 2003; Reinboth & Duda, 2006; Reinboth et al., 2004). However, a careful
examination of the results from the hierarchical regressions reveals that the need for relatedness plays a key role when trying to understand the levels of athlete burnout experienced by the high school student-athletes in this sample. More precisely, relatedness with the head coach was the only basic psychological need that predicted the composite athlete burnout score as well as all three components of burnout, a result which makes sense when one considers the social context of these student-athletes. The head coach plays a central role in the lives of these athletes, giving feedback, grading performance, and organizing practice. Moreover, a lack of relatedness with the head coach is believed to be a result of controlling coaching style (see, Mageau & Vallerand, 2003) that leads student-athletes to pursue their sport for non-self-determined reasons and, in turn, to experience ill-being consequences such as athlete burnout. Future research will need to test this proposition with a longitudinal design, yet it remains that this line of reasoning is concordant with past research showing the influence of coaching behavior on athlete burnout (Price & Weiss, 2000; Vealey et al., 1998).

Beyond the variance accounted for by the need for relatedness, the other two basic psychological needs made unique contributions in explaining the different components of athlete burnout. As suggested by Cresswell and Eklund (2006), the need for competence moderately predicted athletes’ sense of reduced accomplishment. Though this result will need to be replicated in future longitudinal studies, it nevertheless seems to lend credence to the suggestion that feelings of reduced accomplishment are influenced by the satisfaction of the need for competence. As for the two remaining components of burnout, both sport devaluation and emotional and physical exhaustion were significantly predicted by the satisfaction of the need for autonomy. According to Deci and Ryan (1985, 1991), a lack of autonomy is a consequence of social constraints (i.e., pleasing one’s coach, parents or teammates) that lead student-athletes to pursue their sport for non-self-determined reasons. Pursuing a sporting endeavor for non-self-determined reasons, student-athletes may come to reduce their commitment and to devalue their sport. Moreover, if student-athletes lack autonomy in a social environment, preventing them from developing other identities, they might invest a great deal of energy and effort in trying to validate their athletic identity, making them susceptible to greater emotional and physical exhaustion (Coakley, 1992).

Based on recent research (Sheldon & Niemiec, 2006), we also examined the hypothesis that greater need satisfaction balance would relate to lower athlete burnout perceptions. Balance of need satisfaction, a relatively new construct in SDT research, represents the equilibrium in the satisfaction of the needs for autonomy, competence, and relatedness. In the present study, balance of need satisfaction of the composite athlete burnout subscale over psychological needs, thus (Sheldon & Niemiec, 2006) contribution in predicting emotional and need satisfaction made a key role of relatedness was explained in the present study is similar to the reported change in $R^2$ reported change in $R^2$ reported change in $R^2$ reported change in $R^2$. Future studies will need to examine the high correlation between the balance of need satisfaction and the key role of relatedness with burnout in this student-athlete.

Despite the theoretical construct, the present results demonstrate how the balance of need satisfaction can moderate one approaches the ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling ceiling 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balance of need satisfaction made a significant contribution to the prediction of the composite athlete burnout score and the reduced sense of accomplishment subscale over and above the contribution of each of the three psychological needs, thus replicating past research on subjective well-being (Sheldon & Niemiec, 2006). It also made a marginally significant contribution in predicting emotional and physical exhaustion. Although balance of need satisfaction made a significant contribution in the prediction of athlete burnout, one must be cognizant of the very small amount of additional variance explained in the prediction of athlete burnout. In this regard, the results of this study are similar to the findings of Sheldon and Niemiec (2006), who reported change in $R^2$ ranging from 1% to 3% across their four studies. Future studies will need to determine whether such a result is due to the very high correlation between the satisfaction of the need for relatedness and the balance of need satisfaction or whether such a correlation is indicative of the key role of relatedness with the head coach in trying to understand athlete burnout in this student-athlete population.

Despite the theoretical contribution of the balance of need satisfaction construct, the present results need to be carefully examined with respect to how the balance of need satisfaction is operationalized. More precisely, when one approaches the ceiling value of each need satisfaction scale, less variability exists between the need scales, a problem also noted by Sheldon and Niemiec (2006). Furthermore, theoretically it would seem that the balance of need satisfaction is a required but insufficient condition to yield optimal well-being. A person with the lowest possible level of satisfaction of the needs for autonomy, competence, and relatedness would have the same level of balance of need satisfaction as a person with the three needs being totally satisfied. As such, future research is needed to examine if a combination of high balance with high absolute levels of satisfaction on the three needs is essential for optimal well-being.

In closing, need satisfaction and balance of need satisfaction are posited to play an antecedent role to athlete burnout in the present study. However, it is important to note that, given the cross-sectional nature of the study, it is impossible to determine the direction of the relationship between these variables. Furthermore, the hypotheses tested in the present study suggest that the satisfaction of basic psychological needs is directly related to athlete burnout. However, according to Deci and Ryan (1985, 1991), psychological needs are believed to be antecedents of motivation which, in turn, is directly related to well-being. Recall that prior research has revealed that amotivation and intrinsic motivation are significantly related to athlete burnout (Eklund & Cresswell, 2007). Hence, future research should examine multidimensional profiles of
sport motivation, preferably using all six types proposed by Deci and Ryan (1985, 1991), to provide a richer examination of the complex interplay between need satisfaction, motivation, and burnout using longitudinal designs (Vallerand, 1997). Moreover, this line of research will have to consider other factors which can influence basic psychological needs. For instance, in the present study, relatedness with the head coach was found to predict athlete burnout. To what extent do relatedness with other athletes and with assistants-coaches predict athlete burnout? Could positive relationships with teammates buffer or reduce the negative impact of a poor relationship with one’s coach? Finally, student-athletes face multiple sources of stress associated with their school and sport activities. As with the extant literature, this research has treated athlete burnout without considering the influence of factors associated with involvement in other activities outside the sport domain. Given our limited self-regulatory capacities (Muraven & Baumeister, 2000) and the competitive nature of both the school and sport domains, future research should examine how inter-role conflicts influence athlete burnout. Furthermore, another promising line of research would be to investigate the context-specific need satisfaction and motivation of student-athletes and to examine the contributions of school- versus sport-related factors in the prediction of athlete burnout. Failure to satisfy basic psychological needs both in the school and in the sport domain could bolster the experience of athlete burnout, while favoring the development of hopelessness and more chronic forms of emotional distress (e.g., depression). A thorough consideration of the interplay between multiple life domains is warranted to gain more holistic insight about the experience of athlete burnout in the student-athlete population.

REFERENCES

posed by Deci and Ryan (1999) highlights the complex interplay of factors within the context of the competitive sports environment. Future research should examine the concurrent validity of the measure with other related constructs such as goal orientation, self-efficacy, and perceived control. Moreover, future research should consider the role of contextual factors (e.g., coach-athlete relationship, team dynamics) in influencing burnout and its associated outcomes. Finally, future research should address the role of cultural and contextual factors in shaping the experience of burnout among athletes from diverse backgrounds.


Athlete engagement
I. A qualitative investigation

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Organizational engagement may be an essential antecedent of performance and dedication, efficacy, and satisfaction. However, whether or not athletes are engaged (AE) in their sport is not entirely clear. The purpose of this study was to further investigate the dimensions of AE. AE was defined as a positive motivational state characterized by confidence in one’s ability to attain a goal, a perception that the goal is important, and a sense of personal dedication. Results indicate that AE is associated with positive outcomes in sport environments.

KEY WORDS: Organizational engagement, burnout, sense of belonging, dedication, efficacy

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