Relationship Between Eating-Behavior Disorders and Psychological Parameters in Male First-Year Physical Education Students

Edith Filaire, Patrick Treuvelot, and Hechmi Toumi

This study explores the prevalence of disordered eating attitudes in a sample of male first-year university students engaged in a physical education program and examines the relationships between emotional intelligence, coping, and emotional eating in relation to disordered-eating (DE) attitudes. A total of 140 students completed the following questionnaires: the Eating Attitudes Test, the Bar-On Emotional Intelligence Questionnaire, the Coping Inventory Stress Scale, and the Dutch Eating Behavior Questionnaire. The number of participants represented 80% of the male students registered in this discipline at the authors’ university. Twenty percent of students presented DE attitudes even though they were of normal weight. The Bar-On EQ-I results indicated that students with DE attitudes had lower levels of emotional intelligence (EI) scores than students without DE attitudes (control group). Moreover, they scored higher than the control group on coping styles such as avoidance-oriented coping, emotion-oriented coping, and emotional eating. The DE group presented a positive correlation between DE attitudes symptoms and both avoidance- and emotion-oriented coping but a negative correlation between DE attitudes and task-oriented coping. There was also a significant negative correlation between DE attitudes and EI score. Another result from this group indicated an association between EI score and emotional-eating score \((p < .05, r = -.44)\) and also a positive correlation between emotion-oriented coping and emotional eating \((p < .01, r = .47)\). The findings highlight future research potential on the role of emotions and EI in DE symptoms, which may be beneficial in the context of collaborative care management intervention.

Keywords: eating attitude, emotional intelligence, coping, emotional eating

Disordered eating (DE) attitudes and behaviors are a heterogeneous group of problems related to restraint and/or overeating (Smolak, 2005) that are a growing health threat in Western countries (Zysberg & Rubanov, 2010). DE attitudes refer to troubles in eating behaviors that occur less frequently or are less severe than those required to meet the full criteria for the diagnosis of an eating disorder and are considered an early warning sign of an eating disorder (U.S Department of Health and Human Services, 2005). Although DE can occur at any stage of life, its most common age of onset is mid- to late adolescence, and it occurs most commonly in females. However, since the 1990s, there has been increased recognition of its prevalence in males (Herpertz-Dahlmann, Wille, Holling, Vloet, & Ravens-Sieberer, 2008). Over the last 2 decades, not only has the sociocultural environment changed, communicating to men that they need to achieve a lean and muscular physique, but also men, like women, are negatively affected by these sociocultural messages and are more likely to engage in DE behaviors (Petrie, Greenleaf, Reel, & Carter, 2008). Athletes are also not spared (Petrie & Greenleaf, 2007). In fact, it has been shown that they may be more vulnerable to body dissatisfaction, eating disorders, and risky weight-loss or weight-gain practices than nonathletes (Filaire, Larue, & Rouveix, 2011). Scoffier, Paquet, and d’Arripe-Longueville (2010) also showed that athletes are particularly vulnerable because they are under sport-specific pressure to conform to an ideal body type that will further aesthetic and performance goals. Sundgot-Borgen and Torstveit (2004) reported that 8% of elite male athletes had some form of eating disorder. Carter and Rudd (2005) noted prevalence rates for clinical and symptomatic categories of disorders that ranged from 9.3% to 21.2%, respectively, among male collegiate athletes. In general, the prevalence of DE attitudes in male athletic populations remains a matter of debate (Filaire, Rouveix, Pannafieux, & Ferrand, 2007).

Studies in both sports psychology and social psychology have reported that DE attitudes develop from a complex interaction of personal and contextual factors. Among them, locus of control is a predictor of eating attitudes (AbuSabha & Achterberg, 1997). Psychological characteristics exhibited by athletes, such as perfectionism, anxiety, goal orientation, concern with performance, and disturbed body image and self-esteem are also often described as risk factors for eating problems (Gomes, Martins, & Silva, 2011; Rouveix, Bouget, Pannafieux,
It also seems that self-presentation, that is, the processes used to control the way one is seen by others, may also play an important role in sport, affecting the motivation for exercise, the type of activity in which people choose to engage, or where and with whom they exercise (Leary, 1992). Reasons or motives for exercising also seem related to eating disorders, weight and shape reasons being related to DE attitudes (Goncalves & Gomes, 2012). The link between DE attitudes and mood among male rowers has been reported by Terry, Lane, and Warren (1999). However, to our knowledge, studies examining the effects of emotion as contributory factors to DE attitudes are scarce (Markey & Vander Wals, 2007; Spoor, Bekker, Van Strien, & Heck, 2007) and mainly investigated women (Hayaki, 2009; Swami, Begum, & Petrides, 2010). In sport, emotion management is an element of fragility, influencing DE attitudes, with many phenomena of dissatisfaction and compensation observed in situations of competition stress management and mood disorders related to sports success (Filaire, Rouveix, Bouget, & Pannafieux, 2007). Engel, Johnson, and Powers (2003) suggested that athletes who started early practice of sport would build their identity through their practice and exist only as athletes. Their performance would then become the barometer of their capabilities and, therefore, emotion—thereby resulting in its frequent fluctuations. A good performance would often be associated with increased food consumption, while on the contrary a poor performance would result in food restriction. Any poor performance would induce unpleasant emotion, increasing a little more the risk of DE attitudes.

In the past decade, the concept of emotional intelligence (EI) has emerged as a promising factor accounting for a vast range of emotional and interpersonal behavior, and recent studies have examined the relationship between EI and DE attitudes (Costarelli, Demerzi, & Stamou, 2009; Filaire et al., 2011; Zysberg & Rubanov, 2010). Recent research found that EI correlated positively with pleasant emotions and negatively with unpleasant emotions (Lane et al., 2010). Emotional intelligence is a term coined by Salovey and Mayer (1990) referring to a group of noncognitive abilities accounting for how people accommodate and adapt to intra- and interpersonal conditions by identifying emotions, incorporating them in thought processes involving emotional complexity, and manipulating emotions in self and others. Moreover, EI has been associated with people’s ability to adapt to stressful conditions (Goleman, 1995; Mayer, Roberts, & Barsade, 2008). Bar-On (1997) proposed a mixed model for EI personality and has defined EI as an array of emotional, personal, and social abilities and skills that enable people to cope effectively with environmental demands and pressures. Generally speaking, there are various models (and measures) of EI that imply a broader concept of intelligence, including mental abilities and personality characteristics, and it seems that there is no overwhelming evidence to point toward one measure as substantially more valid than the others (Zeidner, Roberts, & Matthews, 2008). The role of EI in eating disorders has been underresearched (Markey & Vander Wals, 2007). Koifman and Thomas (2008) found a negative correlation between scores on a measure of EI, the Bar-On Emotional Quotient Inventory (Bar-On, 1997), and two measures of DE; results indicated that lower levels of EI were significantly correlated with higher total scores on both measures of eating pathology. It also appears that EI is significantly associated with bulimic symptoms and DE attitudes (Costarelli et al., 2009; Markey & Vander Wals, 2007). In addition, coping seems to be implicated in the etiology of DE behaviors (Henderson & Huon, 2002), and effective coping is often characterized as an essential aspect of EI (Matthews & Zeidner, 2000). Coping has been conceptualized as an individual’s cognitive, affective, and behavioral attempts to reconcile his or her appraisal of situational demands and personal resources available to manage these demands (Lazarus & Folkman, 1984). Three basic coping strategies are task-focused, emotion-focused, and avoidance coping. Task-oriented coping is seen as adaptive, and emotion- and avoidance-oriented coping are viewed as maladaptive (Troop, Hollrey, Trowler, & Treasure, 1994). Freeman and Gil (2004) noted that women suffering from DE are more inclined to use avoidance-oriented coping strategies, and emerging evidence shows that decreasing eating pathology is associated with more adaptive coping and less maladaptive coping (Fitzsimmons & Bardone-Cone, 2010). Because core facets of EI may relate to adaptability in stressful environments, including the ability to cope adaptively with changing circumstances, it seems that the processes linked to the regulation of emotions, which are the principal concept of EI, are important for coping (Matthews & Zeidner, 2000). Moreover, some of the newer models and definitions of coping draw on emotion research, linking the constructs of EI and coping quite closely (Skinner & Zimmer-Gembeck, 2007). EI could influence the use of coping strategy and may predict coping strategies (Matthews et al., 2006). On one hand, Salovey and Mayer (1990) suggested that individuals with high EI cope more successfully because they better understand their own emotional states, can express their feelings appropriately, and can regulate their moods effectively. On the other hand, maladaptive coping has been characterized as a possible consequence of difficulties in processing emotional material, such as the difficulties exhibited by individuals with low EI. Finally, another coping strategy could be emotional eating. This strategy is the tendency to eat in response to a range of negative emotions such as anxiety, depression, anger, and loneliness and to cope with negative affect. It is at least in part influenced or triggered by emotional factors (Meyer, Leung, Barry, & De Feo, 2010; Spoor et al., 2007). Emotional eating has been proven an ineffective coping strategy (Heatherton, Herman, & Polivy, 1991). EI, being a concept that may explain one’s ability to process emotions on intra- and interpersonal levels, could also emerge as a significant factor associated with emotional eating (Zysberg & Rubanov, 2010).
The evaluation of DE attitudes and behaviors in nonclinical samples is necessary to monitor and track trends and changes in prevalence and to assist in the development and planning of preventive and treatment programs. This is particularly important in young athletes, but also during the transitional context of the first university year. In a recent study, Hudson, Hiri, Pope, and Kessler (2007) reported that even if only a small number of college students meet the clinical criteria for an eating disorder, many of them experience some DE symptoms such as negative body image, dieting, exercise, and compensatory behaviors. Although some epidemiological studies on DE behaviors among students have been conducted, most of them investigated only to females (Farajian, Renti, & Manios, 2008). French studies on this topic are scarce and refer to nutritional or dietary preoccupation (Boujut, & Bruchon-Schweitzer, 2010). However, DE attitudes are a problem for not only females but also males (Dominé, Berchtold, Akré, & Suris, 2009; Gan, Mohd Nasir, Zalilah, & Haziza, 2011), and several authors report that the risk for DE for men and women may be different (Elgin & Pritchard, 2006; Liao et al., 2010).

Thus, the purpose of the current study was to use Bar-On’s EI model (1997) to explore the possible differences in EI, coping skills, and emotional eating in a group of male university students engaged in a first-year physical education program with DE symptomatology and healthy controls. The relationships of the described parameters in the DE-attitudes group were also examined. Male physical education students were selected because, first of all, they are students; second, they practice sport for an average of 10 hr/week; and third, in their future, they will have to provide children and adolescents with information about many health topics including nutrition, prevention of lifestyle diseases, and mental health (Yager & O’Dea, 2009). It was hypothesized that DE attitudes would be predicted by variables from the coping skills and, following Salovey, Bedell, Detweiler, and Mayer’s (1999) analysis, that EI would improve the explained variance in DE-attitude scores caused by maladaptive coping.

Methods

Subjects
A total of 140 male students were recruited from the student population of a French university. All those students were in their first year of the physical education discipline and participated in this study after giving their informed written consent. The number of participants represents 80% of the male students registered for this discipline at this university. They were informed that the data and results were confidential and that they could withdraw at any time during the study without prejudice or consequence to their studies. None of the subjects reported suffering from a diagnosed eating disorder or any other mental illness. Apart from being other than first-year students at the university, there were no exclusion criteria. Permission to conduct the study was granted by the university’s human research ethics committee. Of the 140 individuals who were invited to take part in the study, 120 agreed, representing a response rate of 85.7%. All the students were regional-level athletes, with a training history of 9 years. Their weekly training volume had been constant over the past 2 years, with an average of 10 hr/week. Participants were from a number of different sports including athletics, n = 20; judo, n = 10; cycling, n = 8; football, n = 30; swimming, n = 7; trampolining, n = 4; tennis, n = 12; golf, n = 4; rugby, n = 12; basketball, n = 10; and karate, n = 3.

The participants were allocated into two groups, one with DE attitudes (n = 24; M [SD]; age 19.2 [0.4] years, body-mass index [BMI] 20.3 [3.5] kg/m²) and a control group (n = 96; age 19.5 [0.7] years, BMI 22.5 [2.2] kg/m²) based on their responses to the Eating Attitudes Test-26 (EAT-26; Garner & Garfinkel, 1979).

Experimental Design
The following measures were administered to assess general eating pathology, coping, emotional eating, and EI. The questionnaires were given to the students in a form of a single booklet, together with completion instructions. The main investigator was present in the lecture room while the students completed the questionnaire, in a session lasting 60 min.

Demographic Questionnaire. A specially designed self-administered questionnaire was used to collect demographic information regarding age; weight; height; weight preoccupation; weight-control compensatory strategies such as dieting, vomiting, or use of laxatives; and exercise habits.

French Version of the EAT. The EAT-26 is a 26-item questionnaire validated in French by Leichner, Steiger, Puentes-Neuman, Perreaud, and Gotthiel (1994), designed to identify eating habits and concerns about weight derived from an original 40-item inventory (Garner & Garfinkel, 1979). It is a self-report measure with a 6-point Likert type scale with anchors of always (3), usually (2), often (1), sometimes (0), rarely (0), and never (0) for all items except one (Item 25), which is reverse scored. The EAT is commonly used as a screening instrument for those at risk for DE behavior and can be used as a measure of abnormal, disturbed, or exaggerated eating patterns in nonclinical samples (Rosenahl, Borrmann, Aschenbrenner, Aschenbrenner, & Strauss, 2009). Taking several studies into account, a cutoff score of 10 is a sufficiently distinct measure for subthreshold cases (Aschenbrenner, Aschenbrenner, Kirchmann, & Strauss, 2004). Hence, in the current study, subjects scoring 0–9 on the EAT are defined as having normal eating behavior and attitudes, and those scoring >10, as having...
DE behavior and attitudes. Cutoff scores of 20 or higher indicate increased risk of eating disorders. Individuals who score 20 or more should seek clinical support. In this study, the Cronbach’s α value for the EAT-26 was .90.

**Bar-On Emotional Intelligence Questionnaire.** The Bar-On Emotional Intelligence Questionnaire (EQ-I) is a self-report measure that was designed to assess the construct of self-perceived EI and the underlying factors that contribute to emotional behavior. It was validated in French by Thiébaut (2004). It is a 133-item self-assessment instrument. Participants responded to statements such as “It’s hard for me to understand the way I feel” by endorsing one of the following five response options: “Very seldom or not true of me,” “Seldom true of me,” “Sometimes true of me,” “Often true of me,” and “Very often true of me” or “True of me.” This test takes approximately 30 min to complete. The EQ-I provides five composite scales and 15 content subscales: intrapersonal EI, interpersonal EI, adaptability, stress management, and general mood. These subscales measure specific components of emotionally intelligent behavior and thinking. The EQ-I also includes four validity index scales to assess participant motivation and response sets. These validity scales include the number of omissions, as well as an inconsistency index, positive-impression scale, and negative-impression scale. The test manual for the EQ-I reports Cronbach’s α ranging from .69 for the social-responsibility subscale to .86 for the self-regard subscale. The EQ-I shows good stability over repeated testing, with test–retest reliability ranging from .85 at 1-month retesting to .75 after 4 months (Bar-On, 1997). For the purposes of meaningful data interpretation, the participants’ raw scores have to be converted into standard scores. The standard scores are based on a population norm with a mean of 100 and a standard deviation of 15 and account for gender and ethnicity; that is, any EQ-I standardized score can be compared with the equivalent population on the EQ-I normal score (Bar-On, 1997).

**Coping Inventory Stress Scale.** The Coping Inventory Stress Scale is a 48-item self-report instrument that assesses general coping style (Endler, Parker, & Butcher, 1993). Participants indicate on a 5-point scale from 1 = not at all through 5 = very much how often they engage in various activities when faced with a difficult or stressful situation. A three-factor structure (task-, emotion-, and avoidance-oriented coping) was found by Endler et al. This test was validated in French by Rolland (1998). Raw scale scores can be converted to linear T scores, allowing comparisons by gender and psychiatric status (normal vs. inpatients). In our study, we converted the participants’ raw scores to T scores using the normal–population tables by gender. Alpha reliabilities of the Coping Inventory Stress Scale subscales ranged from .81 through .89.

**Dutch Eating Behavior Questionnaire.** The 13-item emotional-eating subscale of the Dutch Eating Behavior Questionnaire (Van Strien, Frijters, van Staveren, DeFares, & Deurenberg, 1986) was validated in French by Lluch et al. (1996) and was used to measure emotional eating. Items are rated on 5-point Likert scales ranging from 0, never to 5, always. This scale is a valid and reliable instrument for evaluating emotional eating in normal subjects, subjects with eating disorders, and obese patients (Van Strien et al., 1986). Cronbach’s alpha coefficients were .95 for the DE group and .96 for the control group.

**Statistical Analysis**

Statistical analyses were performed using the Statistical Package for Social Sciences (version 16.0, SPSS, Inc.). Results are expressed as M and SD. All variables were tested for normality (Shapiro-Wilks test) and homogeneity of variance (Levene statistic). First, comparisons between the two groups (normal eating behavior and attitudes: control group; subjects with DE attitudes, DE group) were made using Student’s t test. Second, Pearson’s correlations were calculated to assess relations between EI, coping, emotional eating, and DE attitudes. Third, two multiple-regression analyses were conducted to examine how these variables contributed to variance in DE attitudes. To test our hypothesis, a first block consisting of the four coping skills was employed. The second block consisted of the EI score. Probabilities below p < .05 were regarded as significant. Effect sizes (ES) were calculated. As a general guideline, an ES of .20–.50 is considered a small effect, .50–.80 is medium, and a value of more than .80 is large (Cohen, 1988). The ESs in our study ranged from .3 to .6.

**Results**

**Sample Characteristics**

20% of the total sample of students (n = 24) reported having DE attitudes and behaviors. Thirty-three percent of the population studied reported they were concerned about gaining weight during their first year of university. 12.5% of the students in the DE group were currently dieting to maintain weight, and 8.4% were currently dieting to lose weight. They reported using different weight-loss methods such as fasting (15.3%), intentional vomiting (8.4%), and diuretics or laxatives (7%) during the last 12 months.

No differences were noted between the two groups in their physical activity practices per week. No significant differences were found in BMI and age between DE group and controls.

**Psychological Characteristics**

Means and standard deviations for the study variables are presented in Table 1. Strong differences in mean scores were found between the DE sample and the control group. The Bar-On EQ-I results indicated that subjects in the DE group scored lower on the EI scale than those in the control group. The DE group scored higher on avoidance- and emotion-oriented coping than the control group (Table 1). Furthermore, they had significantly higher emotional-eating scores.
Correlations Between the Variables

The relationship between DE attitudes total score (EAT-26) and the variables measuring coping skills, emotional-eating score, and EI was explored using Pearson’s product–moment correlation coefficient (Table 2). In the DE group, correlations were generally as expected based on the literature, including positive correlations between DE attitudes and both avoidance- and emotion-oriented coping and negative correlations between DE attitudes and task-oriented coping. There were also significant negative correlations between DE attitudes and EI score. In this group, results also indicated an association between EI score and emotional-eating score ($p < .05, r = -.44$). Emotion-oriented coping was also correlated with emotional eating ($p < .01, r = .47$; see Table 3).

Table 1 The Study’s Measured Variables ($M \pm SD$)

<table>
<thead>
<tr>
<th>Variable</th>
<th>DE group ($n = 24$)</th>
<th>Control group ($n = 96$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eating attitudes</td>
<td>19.5 ± 4.2</td>
<td>6.8 ± 3.6***</td>
</tr>
<tr>
<td>Emotional intelligence</td>
<td>402.5 ± 13.1</td>
<td>448.9 ± 22.7*</td>
</tr>
<tr>
<td>Task coping</td>
<td>41.9 ± 6.5</td>
<td>52.4 ± 8.1*</td>
</tr>
<tr>
<td>Emotion coping</td>
<td>55.3 ± 8.5</td>
<td>42.43 ± 6.7*</td>
</tr>
<tr>
<td>Avoidance coping</td>
<td>49.2 ± 5.6</td>
<td>39.1 ± 5.5*</td>
</tr>
<tr>
<td>Emotional eating</td>
<td>3.2 ± 0.9</td>
<td>2.2 ± 0.5***</td>
</tr>
</tbody>
</table>

Note. DE = disordered eating. Eating attitudes were measured with the Eating Attitudes Test-26. Emotional intelligence is the global score measured with the Bar-On Emotional Intelligence Questionnaire. Task coping, emotion coping, and avoidance coping are the three-factor structure measured with the Coping Inventory Stress Scale. Emotional eating was measured with the emotional eating subscale of the Dutch Eating Behavior Questionnaire.

*p < .05, **p < .01, ***p < .001, DE group vs. control.

Table 2 Correlations Between Eating Attitudes and the Other Measured Variables in the Two Study Groups

<table>
<thead>
<tr>
<th>Eating Attitudes</th>
<th>DE group ($n = 24$)</th>
<th>Control group ($n = 96$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional intelligence</td>
<td>-.48*</td>
<td>.25*</td>
</tr>
<tr>
<td>Task coping</td>
<td>-.41*</td>
<td>.23*</td>
</tr>
<tr>
<td>Emotion coping</td>
<td>.43*</td>
<td>-.24*</td>
</tr>
<tr>
<td>Avoidance coping</td>
<td>.47*</td>
<td>-.23*</td>
</tr>
<tr>
<td>Emotional eating</td>
<td>.42*</td>
<td>.18</td>
</tr>
</tbody>
</table>

Note. Eating attitudes were measured with the Eating Attitudes Test-26. Emotional intelligence is the global score measured with the Bar-On Emotional Intelligence Questionnaire. Task coping, emotion coping, and avoidance coping are the three-factor structure measured with the Coping Inventory Stress Scale. Emotional eating was measured with the emotional eating subscale of the Dutch Eating Behavior Questionnaire.

*p < .05.

Table 3 Results of Multiple Regressions to Determine the Variables That Predict Disordered Eating Attitudes

<table>
<thead>
<tr>
<th>Variables entered at Step 1</th>
<th>$R^2$ adj</th>
<th>$\beta$</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>emotion coping</td>
<td>.32</td>
<td>2.09</td>
<td>.01</td>
<td></td>
</tr>
<tr>
<td>avoidance coping</td>
<td>.04</td>
<td>0.27</td>
<td>.71</td>
<td></td>
</tr>
<tr>
<td>task coping</td>
<td>-.13</td>
<td>-.90</td>
<td>.37</td>
<td></td>
</tr>
<tr>
<td>emotional eating</td>
<td>.55</td>
<td>2.60</td>
<td>.05</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variables entered at Step 2</th>
<th>$R^2$ adj</th>
<th>$\beta$</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>emotion coping</td>
<td>.23</td>
<td>1.23</td>
<td>.05</td>
<td></td>
</tr>
<tr>
<td>emotional eating</td>
<td>.42</td>
<td>2.06</td>
<td>.01</td>
<td></td>
</tr>
<tr>
<td>emotional intelligence</td>
<td>-.60</td>
<td>-3.79</td>
<td>.01</td>
<td></td>
</tr>
</tbody>
</table>

After Step 1, corresponding to the first block, results showed that only emotion-oriented coping and emotional eating accounted for 30% of the variance in EAT score ($F = 3.2, p = .01$). After Step 2, the increase in $R^2$ from 30% to 42% was significant ($F = 4.1, p = .01$). This indicated that the addition of EI predicted 12% beyond that of the variables entered in Step 1.

Discussion

Although DE attitudes are a topic of great interest in non-sport populations, research focusing on athletes is still scarce, particularly on student athletes. Thus, the current study set out to assess the prevalence of DE attitudes in a sample of male first-year physical education students (representing 80% of the students registered in first year in this discipline in our university) and to examine the possible relationships between emotional intelligence, coping, and emotional eating in relation to DE attitudes. A number of findings emerged from the study.

First, though the sample was small, EAT-26 revealed that one in five men (20%) presented DE-attitude symptoms, which is a high prevalence given the fact that most of the subjects in the DE group were of normal weight. Moreover, 33% of the population studied reported that they were concerned about gaining weight during their first year of university. It is also worth noting that 12.5% of males in the DE group expressed a desire to maintain weight and 8.4% to lose weight. This figure is higher than the estimates of Grigioni, Beaucreux, Ladner, and Déchelotte (2007), who found that 14% of young male students suffered from DE attitudes. Recently, Costarelli, Antonopoulou, and Mavrovounioti (2011) noted that 12.8% of boy students presented DE attitudes and behaviors. Whereas Grigioni et al. (2007) investigated students not engaged in any sport training, we evaluated male physical education students performing on average 10 hr of physical activity per week—a population that is sensitive to maintaining their weight (Rouveix et
Moreover, our study included male students practicing individual sports that involve restricted body weight (“lean or weight sports”; e.g., athletics, judo, cycling, trampolining, karate). Thus, in addition to the general sociocultural pressures that are present for all men, our samples of male physical education students may experience direct or indirect pressures from coaches or teammates to alter their weight, strength, body size, or appearance in the hope of improving their performance (Petrie et al., 2008). However, our results contrast with those of Thiel, Gottfried, and Hesse (1993), who reported a prevalence of 52% of DE attitudes among elite rowers and wrestlers. One possible explanation for these differences may be related to the level of sport performance in our sample. In fact, as competitive level increases, athletes may face more intense training and greater pressure to maintain a specific weight (Sundgot-Borgen & Torstveit, 2004). Regarding pathogenic weight-control behaviors, our population used fasting/dieting as their primary means for controlling their weight, which is consistent with research in male athletes (Rouveix et al., 2007). What is not clear, however, is whether these males practicing sport at regional level enter the university with unhealthy weight-control attitudes or such regimes develop as a result of the pressures and demands at the university. We can only put forward the hypothesis that, given the competitive atmosphere of universities, the fact that campus organizations may promote adherence to social and cultural standards for weight, and that our population are athletes for the most part engaged in lean sport, many of these young adults face a strong pressure to diet or to maintain a low weight (Timko, Mooney, & Juarascio, 2010).

We also focused on the relationship between EI, coping, and emotional eating in relation to DE attitudes. Studies have linked emotional eating to a complex combination of genetic, physiological, and emotional factors including processing and coping strategies (de Lauzon-Guillain et al., 2009). Moreover, it has been shown that EI correlated positively with pleasant emotions and negatively with unpleasant emotions (Lane et al., 2010). Furthermore, emotions, DE attitudes, and performance in sport are linked, a poor performance resulting in a food restriction (Engel et al., 2003). Thus, any poor performance would induce unpleasant emotion, increasing a little the risk of DE attitudes. In this study, we did not evaluate whether the students were successful at their sport. However, our results for male physical education students support previous hypotheses of Zysberg and Rubanov (2010) and confirm that EI score was negatively correlated with emotional-eating score. Having high EI is generally regarded as being better able to control emotions effectively and to cope with everyday challenges, which contributes to good mental health (Taylor, 2001). Lower EI is significantly correlated with eating pathology (Koifman & Thomas, 2008). Since EI puts coping with and processing emotions at its very core, it may influence the choice of emotional eating as an inefficient coping mechanism (Zeidner et al., 2008). For Waller and Osman (1998), emotional eating may have a role in the early identification of eating problems in nonclinical groups. Our study also showed that emotional eating is related to reliance on emotion-oriented coping, this coping style being associated with poor psychological health (Markey & Vander Wals, 2007; Spoor et al., 2007). Koff and Sangani (1997) also reported that female university undergraduates with subclinical eating disorders report more emotion-oriented coping and distraction strategies than do female university undergraduates without eating disorders. Moreover, in the current study, EI, emotional eating, and emotion-oriented coping were significant emotion-regulation variables to predict DE attitudes and behaviors, accounting for 42% of the variance. Henderson and Huon (2002) found that a maladaptive coping strategy moderated the relationship between negative affect and severity of DE, whereas Markey and Vander Wals (2007) suggest that even if emotion regulation is significantly associated with DE symptoms, the association between negative affect and eating disorders is not significantly influenced by the level of EI or the choice of coping strategy.

Limitations of the Study and Conclusion

Our study has some limitations that could affect the validity of our results. First, there are limitations regarding the size of the study population, even if the number of participants represents 80% of the students registered for physical education in our university. Thus, our results may be specific to a male student-age population, and the associations between the concepts of interest in this study may differ across populations. We acknowledge that further studies are needed with bigger samples to confirm the current finding. Second, given the reliance on self-reported data in the current study, the findings should be interpreted with a degree of caution. Third, there is a debate in the literature regarding the use of self-report measures to assess EI. Some researchers contend that self-report measures are not an appropriate means of assessing an intelligence, particularly one addressing emotions, because one who uses them assumes that an individual has an accurate self-understanding and self-concept, which is often not true (Mayer, Caruso, & Salovey, 2000). Therefore, the results of this study may have differed if ability or performance measures had been used in place of self-report measures. Notwithstanding the limitations, the current study indicated that male students practicing sport at a regional level who display more DE attitudes are somewhat more likely to have lower levels of EI and to use fewer adaptive coping strategies than men who display fewer DE behaviors. These findings open the door for future research on the role of emotions and EI in DE symptoms. The findings of this study may also prove helpful from an intervention perspective. The transitional context of the first university year is an important time for prevention health, and physical education students...
represent a great opportunity for focused nutritional behavior and education. The results suggest that clinicians working in academic preventive medicine in the university may benefit from an awareness of the students’ levels of EI and coping techniques, as these constructs seem to be significantly associated with DE attitudes.

**References**


Eating Disorders in Physical Education Students


