ABSTRACT

BURNOUT, MOTIVATION, AND PERCEIVED COACHING BEHAVIOR IN FEMALE INTERCOLLEGIATE ATHLETES: ASSESSING RELATIONSHIPS OVER A COMPETITIVE SEASON

by Mallory Elizabeth Mann

The primary purpose of this paper was to determine if athletes’ perceptions of their coaches’ behaviors contributed to variations in their experiences of burnout over the course of a season. A secondary purpose of this study was to examine whether or not changes in athlete burnout levels across the competitive year corresponded with differences in motivational orientation profiles. Results showed that certain perceived coaching behaviors did, in fact, explain, at least in part, the increase in burnout levels that a small number of athletes reported throughout the season. It is also significant to note that, in relation to the secondary purpose of this study, changes in motivation (i.e. moving from self-determined to non self-determined motivational styles) as the season progressed were predictive of an increase in burnout levels.
BURNOUT, MOTIVATION, AND PERCEIVED COACHING BEHAVIOR IN FEMALE INTERCOLLEGIATE ATHLETES: ASSESSING RELATIONSHIPS OVER A COMPETITIVE SEASON

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CHAPTER ONE
INTRODUCTION

In 1972, the United States Congress established Title IX, originally an education act, which stated that sex/gender could no longer prevent people from participating in, receiving the benefits of, or being discriminated against in any federally funded education program or activity. Since the passage of this act, competitive sport has become the most prominent and public arm of Title IX by providing more opportunities for women in sport activities than there were before 1972. Specifically, there have been increasing numbers of females who participate each year as a member of one of their school's intercollegiate teams. During the 2007-08 competitive season, for example, 73,147 women participated at the NCAA Division I level, 36,510 women participated at the Division II level, and 66,337 participated at the Division III level (DeHaas, 2009).

Although there is research to support the positive physical, social, and psychological benefits of females' participation in competitive sport programs (e.g., Kane & LaVoi, 2007), there are also some concerns about more negative effects. Specifically, over the last couple of decades, sport psychology researchers have been examining levels of burnout in elite athletes (see recent reviews of this research by Eklund & Cresswell, 2007 and Goodger, Gorely, Lavallee, & Harwood, 2007). Burnout has been defined by Raedeke (1997; Raedeke & Smith, 2001) as a syndrome that is characterized by a constellation or group of symptoms. These symptoms include: perceived emotional and physical exhaustion, feelings of sport devaluation, and perceived reduced accomplishment. Current research (Eklund & Cresswell, 2007; Goodger et al., 2007) confirms that there are some athletes who do experience high levels of burnout during their years of collegiate sport participation.

One of the primary factors that have been identified as a cause of increased burnout levels in athletes is the physical and physiological demands that participation in elite sports place on them (Kentta, Hassmen, & Raglin, 2001; Raglin & Wilson, 2000; Silva, 1990). Thus, there has been some research studies conducted to identify the effects of overtraining on the development of burnout levels in elite athletes.

In addition to the possible effects of overtraining, other personal and socioenvironmental factors have also been suggested as a cause, or at least a correlate, of high levels of burnout in selected athletes (Coakley, 1992; Eklund & Cresswell, 2007; Goodger et al., 2007; Smith, 1986). In particular, the leadership styles and behaviors used by coaches in practice and competitive contexts have been identified as possible factors leading to high levels of burnout in college athletes (Price & Weiss, 2000; Vealey, Armstrong, Comar, & Greenleaf, 1998). Although only a few studies have been conducted to actually examine how coaches may affect athlete burnout, the results of these studies have provided at least initial support for the link between coaching behaviors and leadership styles and levels of burnout in their athletes. However, these studies were primarily cross-sectional in design and thus provided only a "one-shot" assessment of the link between coaching behavior and athlete burnout. What is needed now is a more longitudinal research approach.
To address this need, the primary purpose of the current study was to measure levels of burnout in a sample of female intercollegiate athletes at both the early and late season timepoints and then to determine if changes in athletes' burnout levels over the season can be predicted, or explained by, their perceptions of their coaches' leadership styles and feedback behaviors. A secondary study purpose was to determine if the changes that occur in athletes' burnout levels over a competitive season are correlated with changes in their motivational orientation profiles. Thus, this study was primarily based in the self-determination approach to burnout and dropout levels in collegiate female athletes.

To provide a context for these two study purposes, the relevant research and theory is reviewed in the next chapter. This review begins with an examination of the research and theory on burnout and is followed by a review of the research and theory on coaching effectiveness, particularly as it is related to athletes' levels of motivation and burnout.
CHAPTER TWO
REVIEW OF THE LITERATURE

The theoretical and empirical literature that is most relevant to the current study comes from two main areas. This includes the burnout literature and the coaching effectiveness literature. These research areas are explored in the following sections of this chapter, beginning with burnout and then continuing to coaching effectiveness. At the end of this chapter, the research and theory in these two areas is combined to describe the purposes and focus of the current research project.

BURNOUT IN THE SPORT CONTEXT

The concept or phenomenon commonly referred to as burnout was first identified and studied in the workplace. Specifically, Freudenberger (1974; 1975) coined the term "burnout" in an attempt to explain the process of mental and physical deterioration that occurred in individuals working in health care settings and that often led to eventual ineffectiveness on the part of the worker who was experiencing high levels of workplace burnout. According to Freudenberger, the phenomenon of workplace burnout was characterized by exhaustion due to excessive demands on energy, strength or personal resources. Traditionally, burnout has been deemed a dysfunctional condition that develops gradually (Schaufeli & Enzmann, 1998) as a prolonged response to chronic emotional and interpersonal stressors (Maslach, Schaufeli, & Leiter, 2001; Pines, 1993).

In general, the research on burnout in the workplace suggested that the effects were negative and that they could vary in severity depending on the person, situation/environment, and other outside factors. Some of the results of burnout include but are not limited to: decreased performance, insomnia, low motivation, impaired health, increased use of drugs or alcohol, and/or personal dysfunction (Maslach & Goldberg, 1998; Maslach, Jackson, & Leiter, 1996). Certainly, in some cases, individuals who experience high levels of burnout in the workplace or workplace activity can end up discontinuing or withdrawing (quitting) from that place or that activity. But, other individuals who are experiencing these same high levels of burnout may continue to participate in that workplace or work activity because they have to (e.g., for money) or because they perceive that they have no other options.

As noted earlier, the majority of the early research on burnout was conducted in the workplace (i.e., especially in individuals working as health care professionals and human service workers). However, researchers in sport psychology soon saw that burnout might also occur in the sport setting. In an early article, Smith (1986) defined athletic burnout as a "psychological, emotional and, at times, a physical withdrawal from a formerly pursued and enjoyable activity" (p. 37). More recently, however, Raedeke (1997; Raedeke & Smith, 2001) has defined athlete burnout as a syndrome that is characterized by a constellation or group of symptoms. These symptoms include: perceived emotional and physical exhaustion, feelings of sport devaluation, and perceived
reduced accomplishment. Raedeke based his definition on the writings of Maslach and Jackson (1981; 1986) who examined burnout in the workplace. But, Raedeke's adaptation of their definition of burnout was designed to make it more applicable to the sport setting. Thus, rather than focusing primarily on emotional exhaustion as did Maslach and Jackson in their definitions of burnout in the workplace, Raedeke included physical exhaustion as a component of athlete burnout. Furthermore, the symptom of sport devaluation was selected to describe the feeling on the part of the athlete who is experiencing burnout that the rewards and/or benefits that she or he used to experience as an athlete are no longer really that valuable or that desirable (e.g., "I don't care as much about my sport performance as I used to"). Also, the symptom of reduced accomplishment describes the feelings on the part of the athlete who is experiencing burnout that he or she is no longer making significant or important achievements or accomplishments in her or his sport setting (e.g., "It seems that no matter what I do, I don't perform as well as I should").

Qualitative interview studies conducted with individual athletes have verified that the three symptoms of burnout identified by Raedeke (1997) do exist (e.g., Cresswell & Eklund, 2006; 2007; Gustafsson, Hassmen, Kentta, & Johansson, 2008). Furthermore, Cresswell and Eklund's 12-month longitudinal interview study (2007) with elite athletes revealed that there may be a sequential relationship between the three burnout symptoms. Specifically, examination of the season-long interview results indicated that high levels of mental and physical exhaustion, which are subsequently combined with high perceptions of reduced performance accomplishments might eventually lead to feelings of sport devaluation, which, then, lead to high levels of overall burnout. Although other definitions or conceptualizations of athlete burnout have been forwarded (e.g., Coakley, 1992; Silva, 1990), the more recent definition by Raedeke (1997; Raedeke & Smith, 2001) is the one that is most consistently used in the current sport research on burnout and thus will be used in this research study as well.

Several theoretical models have been developed and published in the sport literature to describe the processes that are involved in the athlete burnout syndrome. Although a few of these models were based on either sociocultural (e.g., Coakley, 1992) or physical/physiological (Silva, 1990) research approaches, the majority of the models that have been used in the sport literature were formulated from a more social psychological perspective. Given that the current research project is based on a social psychological approach, these models are prioritized in the following review.

Theories and Models of Athlete Burnout

In 1986, Smith developed a cognitive-affective model of athlete burnout. His model was grounded in the research and theory that had been published on burnout in the workplace. Thus, he used the workplace literature to develop the first formal sport-specific model on burnout. Smith began by defining athlete burnout as the psychological, emotional, and physical withdrawal by an athlete from a previously pursued and enjoyable activity. To develop his model that was designed to explain the processes involved in the development of athlete burnout, Smith primarily focused on stress and
anxiety. In this model, Smith depicts four components with parallel relationships for stress and burnout, which are influenced by both personality and motivation. The imbalance between situational demands and personal or environmental resources is the first component of Smith’s model. In the second component, he discusses cognitive appraisal as the mediator of behavior (e.g., chronic perceptions of overload, lack of control, absence of meaningful accomplishment, and devaluation of the self and/or the activity). Component three, which refers to the nature and intensity of an athlete’s physiological response, is determined by, and interacts with, facets of component two. The final component of Smith’s (1986) model of the burnout syndrome involves the athletes’ coping responses and behaviors, which are characterized by a decrease in efficiency and a psychological and possibly even a physical withdrawal from the activity. Overall, Smith’s model suggests that burnout in sport occurs when an individual athlete perceives that stress-induced costs rise without an associated decline in perceived sport-related benefits to the point where there is an imbalance in the cost-benefit ratio for engaging in an activity. Physical involvement, according to Smith, may still exist if benefits remain present or another alternative does not seem plausible to the participant. However, burned-out athletes will exhibit psychological, even without physical, withdrawal under these conditions.

The cognitive-affective model created by Smith in 1986 was used by subsequent researchers to examine stress and burnout in the sport setting. Specifically, Gould and his colleagues (Gould, Tuffey, Udry, & Loehr, 1996) found support for the processes specified in Smith’s model when they interviewed young elite athletes who had experienced burnout. Similarly, Raedeke & Smith (2004) also found evidence in support of Smith’s hypothesis of a stress-mediated relationship whereby both coping strategies and social support moderate the perceived effects of burnout. More specifically, their research indicated that the relationship between coping behaviors and burnout was relatively strong while the relationship between social support and burnout was less reliable and more ambiguous.

As noted in the previous paragraph, some support has been found in the extant literature for Smith’s (1986) model. However, there has also been some criticism of the model and its assumptions. Thus, some additional social psychological models and theories of athlete burnout have subsequently been published.

In the first of these alternative models, Schmidt and Stein (1991) began by arguing that dropout and burnout are not clearly delineated in the Smith (1986) model. That is, they suggested that the two concepts may be very similar but that the relationship between them may follow a temporal or developmental timeline. Thus, they proposed that burnout might occur when the cost-benefit ratio showed a slow, progressive imbalance over time while the athlete continued normal participation routines. However, that same ratio would abruptly change and force the athlete to immediately withdraw when dropout occurs. Based on the limitations that Schmidt and Stein identified in the Smith (1986) model, they (1991) developed a sport commitment model that was specifically designed to tease out the difference between people remaining in sport for enjoyment, those who play for reasons other than enjoyment, and people who remain in competition for some combination of enjoyment and other factors. According to their commitment-based model, commitment is predicted by athletes’ satisfaction with their
sport involvement along with their perceptions of potential alternatives, and their beliefs about their sport investment. Athletes, who become dissatisfied with the costs of involvement but feel trapped by the efforts and resources invested in their participation along with a lack of perceived alternatives, are believed, according to these researchers, to be at highest risk for burnout.

Subsequently, Raedeke (1997) expanded somewhat the original commitment model of burnout (Schmidt & Stein, 1991) by arguing that athletes may be committed for a combination of motives related to either sport attraction (i.e., "I want to participate") or sport entrapment ("I have to participate"). Furthermore, he suggested that athletes who exhibit entrapment motives would have higher levels of burnout than will athletes with attraction motives. Raedeke supported this claim when he found, through a research project completed with age group swimmers, that commitment based on entrapment elevated the risk of athlete burnout while commitment based on attraction to sport did not produce this effect. Although Raedeke demonstrated initial support for the connection between athlete burnout and sport commitment, more research is needed to determine the direction of the relationship (i.e., does burnout impact commitment or vice versa?).

A third and more recent theoretical perspective on sport discontinuation (dropout) and, by extension, burnout (Sarrazin, Boiche, & Pelletier, 2007) was based on self-determination theory (SDT). SDT (Deci & Ryan, 1985, 2000; Vallerand, 2001) suggests that human beings have innate psychological needs that must be met in order for optimal functioning, social development, and personal well-being to occur. Specifically, people have the need to feel autonomous (internal control), competent (perceive themselves as effective especially during challenges), and related to others (socially and emotionally connected with others). Whether or not these functions are met or not met controls individuals' motivations and behaviors. For example, within a specific achievement context such as the competitive sport setting, individual athletes who do perceive autonomy, competence, and relatedness (i.e., those whose three basic human needs are met within that sport context) will also experience a self-determined motivational orientation or style within that context. That is, they will exhibit an intrinsic motivational orientation (e.g., "I participate and work hard in my sport because I enjoy doing so or because I want to achieve at a high level"). In contrast, individual athletes who do not perceive autonomy, competence, and/or relatedness in their competitive sport setting may experience a more external or non-self-determined motivational orientation (e.g., "I participate and work hard in my sport because I need to keep my scholarship or because I don't want to lose my status as an athlete") or even an amotivational orientation (e.g., "I have no idea why I continue participating in my sport").

Recently, Sarrazin et al. (2007) have applied SDT to the phenomenon of sport dropout and burnout. Specifically, they suggest that when athletes' basic psychological needs (perceived autonomy, competence and relatedness) are chronically frustrated or go unmet, then athletes' motivational orientation may become non-self-determined, and high levels of burnout may ensue, which, in turn, may lead to dropout. In general, then, this theoretical perspective on burnout clearly suggests that athletes' risk for burnout and/or dropout is linked to their motivational orientation that, in turn, is affected by athletes' perceptions of competence, autonomy, and relatedness. A few studies have been
conducted recently to test these links. These studies will be reviewed in a later section of this chapter.

As noted earlier, most of the sport psychology research on burnout has used one of the three models described in the previous paragraphs. However, alternative models have been suggested. For example, Coakley (1992) proposed an alternative conceptualization to Raedeke’s (1997) idea of burnout as a psychosocial syndrome. Specifically, Coakley views burnout as a young athlete's unwarranted withdrawal from sport after intense involvement and substantial accomplishment. Furthermore, this researcher attributes the cause or origin of sport dropout to problems in the socioenvironmental context of competitive sport. Thus, he suggests that burnout should be seen as a social problem rather than a "personal" problem on the part of the individual athlete. In making this argument, Coakley posits that the organization and structure of sports disempowers young athletes because sport programs are run by, and often for, the adults. Young athletes who participate in these programs from an early age may come to perceive that they have little meaningful control over their lives both within and outside of the sport (e.g., within the sport setting their behavior is under the control of the coach and outside of the sport setting, training rules may prevent them from having meaningful social relationships). Furthermore, Coakley argues that young athletes who spend their pre-teen to late-teen years in this type of all-encompassing sport structure may develop a sense of themselves only in terms of their athletic status. Thus, they may develop a self-identity that is completely linked to sport. This may prevent those children or adolescents from developing a multifaceted self-identity (e.g., I am not only an athlete but I am also good at art, at making new friends, etc.) that may be important to psychological health and well-being. Coakley (1992) presents some support for his theory of burnout. In addition, a few other research studies have provided evidence in support of the above-mentioned propositions. One of the research projects will be reviewed later in this chapter.

A few theories or models that have their origins in the sports medicine or sport training research literatures have also been proposed. In 1990, Silva published a training stress syndrome model that places primary emphasis on the physical training load as the predominant cause of athlete burnout. Silva's model has 3 phases: staleness (plateau), overtraining, and burnout. Each phase builds on the previous one. The process begins with excessive physical training that initially leads to staleness (or a plateau in performance). If that training load is maintained or increased, then the athlete progresses into the next phase (overtraining). Ultimately, such overtraining leads to burnout. In this model, Silva defined burnout to be "an exhaustive psychophysiological response exhibited as a result of frequent, sometimes extreme, but generally ineffective efforts to meet excessive training and competitive demands" (p. 11). As will be explained later in this chapter, although overtraining (or excessive physical training) may be one factor that leads to increased burnout levels, it also appears that not all burnout is caused by overtraining. Thus, as Eklund and Cresswell (2007) concluded, there is data to show that burnout can occur in sport settings without exposure to excessive regimens of sport training.

More recently, a different formulation of an overtraining model (Kallus & Kellmann, 2000; Kellmann & Kallus, 2001; Kentta & Hassmen, 2002) has been offered.
This model can be described as a stress-recovery-balance approach and comes primarily out of the sports medicine literature. According to these researchers, overtraining (or excessively demanding physical training) is a normal part of the elite training process and thus can be positive when performance is improved. Therefore, overtraining by itself does not necessarily lead to staleness or burnout if there is also an opportunity provided for the athlete to recover from this excessive training. Thus, burnout or staleness only occurs if the stress/recovery balance is not properly structured and maintained.

In summary, then, a number of theoretical models have been proposed in an effort to describe or explain what athlete burnout is, how and why it develops and progresses, and how and when it can result in discontinuation of athletic participation. In order to test the links and connections specified in these theoretical models, researchers have used one of several instruments that were developed to measure levels of burnout in athletes. These instruments are described in the next section.

Instrumentation to Measure Athlete Burnout

Early researchers in the sport burnout area used an adapted version of the Maslach Burnout Inventory (MBI) (Maslach & Jackson, 1981, 1986; Maslach et al., 1996). The MBI has been regarded as the instrument of choice in research conducted on burnout in the workplace. It provides an assessment of three components of burnout: exhaustion (the feeling of being depleted of one’s emotional resources), cynicism (negative, hostile, or excessively detached response to the job), and professional efficacy (emphasis on effectiveness and competence) with high scores on exhaustion and cynicism and low scores on professional efficacy reflecting experiences of burnout. The MBI and its associated modifications (e.g., MBI-General Survey) have been used in sport settings, but most of these studies were conducted to examine burnout in coaches (e.g., Kelley, Eklund, & Ritter-Taylor, 1999), athletic directors (e.g., Martin, Kelly, & Eklund, 1999), and athletics trainers (e.g., Hendrix, Acevedo, & Hebert, 2000). For these sport-related research projects, the MBI was adapted to create the MBI-GS, an instrument designed to measure the burnout syndrome among people who were not involved directly in service relationship occupations. Thus, the wording on individual items in the MBI was changed, for example, from “work” to “rugby” and “organization” to “team” (Eklund & Cresswell, 2007). The MBI-GS contains 16 items that measure burnout on 3 subscales that parallel the MBI (professional efficacy, cynicism, and exhaustion) with all items being measured on a 7-point response format. This survey has been reported to have acceptable reliability, and factorial validity has been demonstrated across a range of samples (Schutte, Toppinen, Kalimo, & Schaufeli, 2000). Furthermore, the MBI-GS was recently found to be useful in a study conducted with rugby players (Cresswell & Eklund, 2006a).

A second instrument to measure burnout in athletes was developed by Eades (1990) and was named the Eades Athletic Burnout Inventory (EABI). The items included in this scale were generated by drawing on the existing literature on burnout, the MBI, and anecdotes from athletes who had experienced burnout. The EABI is a 36-item instrument with 6 subscales (emotional and physical exhaustion, psychological withdrawal, devaluation by coach and teammates, negative self-concept of athletic
ability, congruent athlete-coach expectations, personal and athletic accomplishment). Though it was initially hailed as a valuable addition to the measurement literature, the EABI has recently been called into question in part due to the mixture of burnout syndrome facets and antecedents that are present within the subscales (Raedeke & Smith, 2001). Vealey et al. (1998) removed the five most troubling items and still reported an unsatisfactory fit of the hypothesized factor model to EABI data.

As a response to problems identified with the EABI, Raedeke (1997; Raedeke & Smith, 2001) developed the Athlete Burnout Questionnaire (ABQ). This instrument contains 15 items intended to assess athlete-specific burnout using Raedeke's previously described definition of athlete burnout as a syndrome characterized by three symptoms (mental and physical exhaustion, sport devaluation, and reduced accomplishment). The stem for each of the 15 items, which are graded on a 5-point Likert scale, is *how often do you feel this way?* Raedeke and Smith have provided evidence for construct validation, acceptable internal consistency, and test-retest reliability. Also, Cresswell and Eklund (2006a) used multitrait-multimethod (MTMM) analyses and found the ABQ was useful when employed with elite amateur sporting populations outside of North America. Finally, the creators of the ABQ do suggest that researchers can make minor word changes to accommodate the ABQ to their specific subject populations (e.g., by changing the words "my sport" to "tennis" or "hockey").

In summary, then, both the MBI-GS and the ABQ have shown "acceptable convergent validity with matching subscales highly correlated and satisfactory internal discriminant validity with lower correlations between non-matching subscales" (Eklund & Cresswell, 2007, p. 627). Thus, there is evidence to show that both the MBI-GS and ABQ can be used to measure burnout in athletes, although the ABQ has performed more adequately than has the MBI-GS in MTMM analyses across several studies (Eklund & Cresswell, 2007).

As noted earlier, much of the early research (e.g., 1980's to mid-1990's) in the sport burnout literature was conducted to examine burnout in coaches and other sport leaders. Within the last 10 to 15 years, however, more research studies have been conducted to look at burnout in athletes. In the next section of this chapter, these research studies are reviewed. Because the current proposed study will focus on collegiate athletes, the research studies examined in the next section will primarily be those that were conducted with collegiate athletes, or athletes that were within the college-aged range.

Research on Burnout in Collegiate (or College-Aged) Athletes

As far back as 1975, Freudenberger, in his original work on the phenomenon of burnout identified the sport context as a potential place where burnout might be studied. However, it wasn't until the early 1980's before research on sport burnout began to be published. As noted earlier, much of this early sport-based research focused on coaches and other sport leaders because this subject sample was most aligned to the workplace research samples. However, as subsequent writers and scholars (e.g., Eklund & Cresswell, 2007; Goodger et al., 2007) noted, it soon seemed reasonable to believe that
athletes may also be subject to the burnout syndrome. Especially at the elite levels, where extreme pressure may be placed on athletes to achieve at higher and higher levels and to train ever more intensely in both physical and psychological ways, it seems likely that at least some athletes may experience some or all of the symptoms that have been established to be part of the burnout syndrome. As Eklund & Cresswell point out, most of the extant research on athlete burnout has been conducted with athletes who are training and/or competing at the more elite levels. A large amount of this research has been conducted with young elite athletes (early to later adolescence) (e.g., Gould et al., 1996; Gould, Tuffey, Udry & Loehr, 1997; Gould, Udry, Tuffey, & Loehr, 1996; Raedeke, 1997; Raedeke & Smith, 2004) and/or with older athletes (college to young adult age) competing in amateur or professional leagues outside of the United States (e.g., New Zealand, Sweden) (e.g. Cresswell & Eklund, 2005b; 2005c; 2005a; 2007; Gustafsson, Kentta, Hassmen, & Lundqvist, 2007; Gustafsson et al., 2008; Lonsdale, Hodge & Rose, 2006). Comparatively less research, then, has been conducted with collegiate athletes in the United States. The research studies that are reviewed in the following sections primarily focus on those conducted with collegiate athletes, or at least college-aged athletes. The review begins with a summary of the descriptive research that has documented the frequency, level, and severity of the burnout syndrome in athletes. In the second section, research on the possible consequences of such burnout levels in athletes is reviewed. Finally, in the last section, the research studies that have examined the correlates and/or causes of burnout levels in elite athletes are reviewed.

**Descriptive Research: Prevalence, Frequency, and Levels of Burnout in Athletes**

Recently, two comprehensive reviews (Eklund & Cresswell, 2007; Goodger et al., 2007) of the literature on burnout in athletes have been published. Although both sets of authors used the current research to address the issue of the frequency or prevalence of burnout in various samples of athletes, Eklund and Cresswell provided a more complete assessment of this issue, especially as it relates to collegiate or college-aged athletes. Specifically, they analyzed several studies that used the ABQ to assess burnout in samples of collegiate or college-aged athletes. As they pointed out, the mean scores for the three subscales of the ABQ were relatively consistent across all samples and generally represented about the mid-point of the scale (i.e., 2.5 on a 5.0 scale). Overall, the athletes’ scores across these samples were highest for the physical/emotional exhaustion subscale and somewhat lower for the reduced accomplishment subscale, and then lowest for the sport devaluation subscale. These results indicate that athletes in these samples indicated mean values for all three subscales that correspond to a response scale of "rarely" to "sometimes" in terms of the burnout items. Although these mean values suggest that athletes in this age range and at these competitive levels do not experience high levels of burnout, the standard deviations and range values do indicate some inter-individual variability. Furthermore, examination of the frequency distributions for a sample of 392 amateur rugby players aged 18 to 42 years (Cresswell & Eklund, 2005b) revealed that about 19% to 25% of the sample exhibited scores on the
three burnout subscales that indicate they "sometimes" to "most of the time" experienced burnout symptoms.

Eklund and Cresswell (2007) also noted that burnout scores in athletes (especially at the highly competitive levels) may vary significantly across time in season. This was demonstrated in a study (Cresswell & Eklund, 2005a) conducted during a 12-week rugby tournament with a sample of professional rugby players from New Zealand who ranged in age from 19 to 32. Assessments of players' level of burnout were obtained during the pre-season timepoint, midway through the 12-week tournament, and again just before the last tournament match. Analyses of the results showed increases in all three subscales across the three timepoints. Other studies (e.g., Lemyre, Treasure, & Roberts, 2006; Lemyre, Hall & Roberts, 2008) have also verified that changes occur in athletes' levels of burnout across a competitive season. As a result, it seems plausible that the point of the season in which burnout data is being collected should be considered. Thus, more longitudinal, or at least, season-long data collection projects would be important to conduct in order to more accurately assess the prevalence and severity of the burnout levels experienced by collegiate athletes and to identify the factors that may lead to possibly changing levels of burnout across the season.

In general, then, the research reviewed in this section does suggest that athletes who participate at elite levels may be prone to development of higher levels of burnout. Of course, this research also shows that not all athletes (and perhaps not even the majority of them) exhibit levels of burnout that are above a moderate level. Nevertheless, within any sample of elite level athletes, there does appear to be some that may have higher than moderate levels. The consequences of such higher levels of burnout have been explored in a few studies. This research is reviewed in the next section.

**Consequences of High Burnout Levels**

From the sports medicine research literature, Fry and colleagues (Fry, Morton, & Keast, 1991) identified four relatively broad categories of consequences that may be by-products of overtraining/staleness. These four categories include: physiological/performance, psychological/information processing, immunological, and biochemical. Although there is some research to support these varied consequences of high levels of staleness caused by overtraining, more research is needed to identify the exact links between the causes and effects.

From the workplace research literature, Schaufeli and Buunk (2003) reviewed studies conducted across a 25-year period. This review resulted in the identification of five categories of symptoms that are linked to, or correlated with, workplace burnout. These include affective symptoms (e.g., depression, hostility), physical symptoms (fatigue, chronic illness), behavioral symptoms (e.g., absenteeism, reduced performance, reduced work effort), cognitive symptoms (e.g., cynicism, impaired attention and memory), and motivational symptoms (e.g., loss of enthusiasm).

Although the psychosocial research on burnout in the athletic setting has yet to produce a significant amount of information on the consequences of high levels of burnout in athletes, it has been suggested by many scholars and writers (e.g., Eklund &
Cresswell, 2007; Goodger et al., 2007; Gould & Dieffenbach, 2002; Silva, 1990; Smith, 1986) that athletes who suffer from burnout may experience a range of consequences including fatigue, disrupted sleep patterns, susceptibility to illnesses, depression, and feelings of helplessness. From a more performance or behavioral perspective, an interview study (Raedeke, Lunney, & Venables, 2002) with coaches of elite young swimmers revealed that most of these coaches had worked with young athletes who exhibited high burnout levels. These coaches perceived that the “burned out” athlete exhibited such behaviors as withdrawal from training (e.g., giving excuses for not training, arriving late to practice, missing practice), withdrawal from teammates (social isolation, aggressive behavior), a lack of performance improvement, and a diminished level of interest in the program (e.g., resentment for the program, training levels). Thus, it appears that the effects or consequences of burnout in the athletic setting may be very similar to those seen in the workplace setting.

In summary, then, it does appear as if some negative consequences may occur if individual athletes or groups of athletes reach a higher level of burnout. Thus, it seems important to conduct research studies that are designed to examine possible causes, or at least correlates, of higher levels of burnout in athletes. This literature is reviewed in the next section. Again, this review is primarily limited to studies that were conducted with collegiate or college-aged athletes.

**Correlates or Causes of High Burnout Levels in Collegiate (or College-Aged) Athletes**

Over the past 10 to 15 years, a number of potential causes of high burnout levels in athletes have been identified and studied. To a large extent, the factors that were studied within each research project were typically chosen based on the theoretical model that the researchers followed. The review of these factors begins with the more physical or physiologically based approaches to burnout and then continues to individual difference factors, and finally to social and socio-environmental factors.

**Overtraining as a Cause of Athlete Burnout**

Not surprisingly, much of the research on overtraining as a cause of athlete burnout comes from the sports medicine literature (e.g., Kentta et al., 2001; Raglin & Morgan, 1989; Raglin & Wilson, 2000; Raglin, Sawamura, Alexiou, Hassmen, & Kentta, 2000; Silva, 1990). These research studies, conducted with collegiate athletes and/or elite adolescent and young adult athletes have shown that most of the athletes in these different samples have experienced periods of staleness (characterized as a loss of performance capacity combined with decreased affective mood, motivation, and desire). Furthermore, these periods of staleness were perceived by the athletes to be caused by severe practice conditions, extreme physical fatigue, and lack of recovery time from these excessive physical demands, and emotional exhaustion. A couple of these studies (e.g., Kentta et al., 2001; Raglin et al., 2000) also demonstrated a dose-response relationship between physical training levels and perceptions of staleness in these elite athletes.
Interview studies conducted with elite college-aged or young adult athletes (Cresswell & Eklund, 2006; Gustafsson et al., 2008) revealed a link between perceived levels of burnout and heavy training demands. In particular, these athletes cited a combination of intensive physical training loads combined with insufficient recovery time (thus supporting the tenets of the stress-recovery-balance theory approach to burnout, Kallus & Kellmann, 2000). This lack of recovery time was referred to by athletes in the Gustafsson et al. study as a feeling or perception of "being a 24-h athlete" (p. 811). Interestingly, however, these athletes also described an anti-rest and macho training culture as factors leading to an overtraining syndrome. One athlete in the Gustafsson et al. study described such a culture by stating: "To get a day off you had to be more or less in plaster." (p. 810). Identification of excessive physical training demands and inadequate recovery time periods were also suggested by elite swimming coaches as potential causes of athlete burnout in the interview study conducted by Raedeke et al. (2002). These age-group coaches particularly identified problems with high levels of physical training in the early years of the child's involvement in competitive swimming. One coach said: "If you are going 10,000 yards a day when you are 10, you are probably not going to make it to when you are 13, let alone to when you are at college. You are not going to like the sport, and you are going to end up hating it." (p. 195).

Based on the research cited in the previous paragraphs, it does seem as if high levels of physical training combined with insufficient recovery time may be an important cause of high burnout levels in elite athletes. However, the two interview studies cited in the previous paragraph (Cresswell & Eklund, 2006; Gustafsson et al., 2008) also revealed other possible causes or correlates of burnout. In addition, a recent quantitatively-based study conducted by Gustafsson and colleagues (Gustafsson, Kentta, Hassmen, & Lundqvist, 2007) with young (16 to 21 years of age) elite Swedish athletes revealed a non-significant correlation between training volume and burnout scores. Thus, although training load cannot and should not be ruled out as a causative agent in the burnout process, it is necessary to continue exploring other non-physical factors that may be important to consider. Therefore, some researchers have investigated the possibility that athletes' own psychological characteristics or profiles may make them more or less susceptible to experiencing burnout in the sport context. These individual difference factors are identified and reviewed in the next section.

**Individual Difference Factors as Causes/Correlates of Athlete Burnout**

In 2001, Raedeke and Smith conducted three studies that were designed to develop and then test a psychometrically sound assessment tool of athlete burnout. After completing an exploratory factor analysis in study one and revising the Athlete Burnout Questionnaire (ABQ) in study two, study three was designed to examine the psychometric properties, namely, the validity and generalizability of the newly developed version of the questionnaire. Therefore, the 15-item burnout measure was used on a sample of athletes from a variety of sports (e.g. basketball, softball, cross-country, soccer, tennis, track and field, volleyball) at NCAA Division I and II institutions in the United
States. There were 133 female and 75 male participants in the study who completed the ABQ, the Sport Anxiety Scale (SAS) (Smith, Smoll, & Schutz, 1990), the Sport Motivational Scale (SMS) (Pelletier et al., 1995), 5-items from the sport commitment scale (Scanlan, Simons, Carpenter, Schmidt, & Keeler, 1993), and a 3-item enjoyment measurement. A subset (N=25) of cross-country athletes completed the burnout assessment tool at a second, later date (7-9 days after initial examination) to evaluate test-retest reliability. The findings from Study 3 provided support for the construct validity and reliability (internal consistency and test-retest) of the revised version of the ABQ. The construct validity was strengthened by the finding that athletes’ levels of burnout were positively related to their levels of competitive trait anxiety and amotivation while being negatively related to enjoyment, commitment, and intrinsic motivation. It was also found that the ABQ responses in the cross-country athletes exhibited “good” stability over the 7-to 9-day period (2001). In conclusion, the ABQ was deemed psychometrically sound and capable of being utilized in a multitude of competitive sport contexts with adolescents and young adults. Perhaps more relevant to the current study, the results obtained by Raedeke and Smith in their study showed that collegiate athletes’ levels of burnout were positively related to such other individual difference psychosocial variables as competitive trait anxiety, amotivation (non-self-determined forms of motivation), low commitment to the sport and low levels of sport enjoyment.

Lemyre and colleagues (Lemyre et al., 2006) noted that much of the research literature on burnout had previously dealt with the process that leads individuals to experiencing this condition. Therefore in their 2006 study, they set out to continue this research by evaluating whether changes in athletes’ position on the self-determined motivation continuum over the course of a season might predict their potential for suffering from athlete burnout. A secondary study purpose was to determine if differences found among elite athletes with regards to their positive and negative affect would predict susceptibility to burnout over the course of a competitive season. Lemyre et al. conducted this study with 44 National Collegiate Athletic Association (NCAA) Division I college swim members (female = 19; male = 25) who agreed to voluntarily record how they felt on a series of positive and negative affect states in their logbooks each week throughout the season. The athletes also completed a short motivation questionnaire every third week to assess their self-determined motivational orientation to participate on their current swim team. At the end of the 20-28 week season (depending on qualification to post-season championships), burnout dimension scores were calculated based on the 15-item sport-specific Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001). The obtained results showed that even though the swimmers, on average, reported relatively high levels of self-determined motivation throughout the season, shifts in the quality of motivation were negatively correlated with the potential for experiencing burnout. For example, those athletes who exhibited negative motivational trends over the course of the season (i.e., a decrease in level of self-determined motivational orientation from early to late season), they correspondingly scored significantly higher on all three of the burnout dimensions when compared with student-athletes that reported more positive motivational trends (increased self-determined motivational levels over the course of the competitive season). In relation to their second study purpose, Lemyre et al. found that intra-individual variations in
negative affect (NA) related to all three dimensions of burnout as well as to total burnout, with higher negative affect being predictive of higher levels of burnout at the end of the season. As a result, it may be concluded that monitoring both the motivational trends and changes in affect throughout a season may offer further insight into the psychological processes that lead to athlete burnout in elite competitive environments.

In a subsequent study, Lemyre et al. (2008) investigated the relationship between social cognitive motivational variables as assessed at the beginning of a competitive season with end of season reports of burnout. Elite Norwegian winter sport athletes (N=141 male and female with a mean or average age of 20.1 years) completed a comprehensive motivational questionnaire packet at the start of their season and also completed the ABQ at the end of their competitive/training season (Raedeke & Smith, 2001). Statistical analyses of the obtained data indicated that dispositional goals (ego versus task goal orientation), the type of achievement climate (mastery versus performance-oriented), and elements of perfectionism (excessively high standards for self) were all associated with burnout. Specifically, athletes who exhibited a personal ego goal orientation, high levels of perfectionism, and who perceived a team climate that was performance-oriented also tended to score high on the end of season burnout scale. Furthermore, the correlational analysis and MANOVA results brought to light the idea that a maladaptive motivational profile may be a factor in predicting athlete burnout. That is, the analyses revealed that when elite athletes who demonstrate perfectionist traits are put into an achievement environment that encourages self-validation through the demonstration of ability, the risk for burnout is significantly raised. The results also suggest that athlete burnout interventions may be helpful when they target the achievement environment and attempt to alter the types of goals athletes are setting as they attempt to validate themselves through their achievement in sport. Similar to Lemyre et al. (2006) and Gustafsson et al. (2008), the researchers in the current study also issued a call for future studies to examine these issues using a longitudinal design (measurement of motivational and burnout levels at multiple points across a season) in order to better grasp the developmental components of burnout.

Gustafsson and colleagues (2008) conducted one of the few qualitative research studies on burnout in athletes as they attempted to learn more about the key signs and antecedents of the condition by interviewing ten elite Swedish athletes (age range from 22 to 26 years) who had previously recorded very high scores on the ABQ when they were assessed as part of a large sample of 628 athletes. All of the 2008 interview study participants had experienced high levels of burnout, which eventually led them to drop out or quit their chosen sport. An initial in-person interview was conducted using semi-structured conversational-style questions followed by a second, phone interview that was meant to ensure the researchers were correctly interpreting each athlete’s comments. Though this study was completed with Swedish elite athletes, the results may be transferrable to other, similar contexts especially since athletes in the Swedish system have to leave home and balance the rigors of school and athletic work. Lack of recovery time, “too much sport,” and high expectations were all mentioned as being causative agents of burnout. It seems the multiple stresses caused by an environment comprised of sport, school and social life contributed to a “total overload” (p. 807). Other, critical factors that led to intensified experiences of burnout included a unidimensional athletic
identity, high, ego-oriented goals, inflexible organizing bodies, a feeling of entrapment in the sport, and performance-based self-esteem. The athletes in this study indicated that they were extremely motivated in the beginning of their athletic careers, but as feelings of burnout encroached, the athletes became less motivated and suffered from sport devaluation, which eventually led them to a total withdraw from sport. All of these findings, Gustafsson and colleagues suggest, should be examined using a longitudinal approach.

In general, then, the research reviewed in this section suggests that collegiate or college-aged athletes with certain psychological profiles may be at higher risk for developing or experiencing high levels of burnout than are other athletes. In particular, it appears that the following psychological characteristics are most linked to higher levels of burnout in collegiate or college-aged athletes: high levels of anxiety, perfectionism, unidimensional self-identity, feelings of entrapment, ego goal orientation, and an external (or non-self-determined) motivational orientation. It is important to note, however, that the majority of this research was conducted in a non-causal manner. Thus, these individual difference factors have really only been identified as correlates of burnout rather than as direct causes. In the next section, some possible social or environmental factors that may be related to athlete burnout are identified and discussed.

Social and Environmental Factors as Causes/Correlates of Athlete Burnout

As noted earlier in this paper, Coakley (1992) has argued that burnout (especially in young athletes) should be examined from a more socioenvironmental rather than from a psychological perspective. That is, he posited that the way in which competitive youth sport is structured (e.g., adult-directed rather than child-centered, lack of opportunity for young athletes to participate in other non-sport activities resulting in the young adolescent athlete's development of a unidimensional rather than a multidimensional self-identity) leads to high rates of burnout. The results of some of the research studies conducted to date do provide some support for his hypotheses. Specifically, several sets of researchers (e.g., Cresswell & Eklund, 2007; Goodger et al., 2007; Gustafsson et al., 2008; Raedeke et al., 2002) have found that athletes who experience feelings of entrapment ("I am participating in my sport because I have to"), and low autonomy ("I don't make my own decisions anymore"), as well as a sense of unidimensional self-identity ("I feel like people only see me as an athlete") were more apt to exhibit higher levels of burnout.

With regards to the structure of sport, a recent study conducted by Fraser-Thomas, Cote, and Deakin (2008) provided some information about the effects of different types of developmental sport experiences on adolescents' participation status. These researchers interviewed 25 adolescents (ages 13-18 years) who were still engaged in elite swimming activity and 25 matched adolescents who had recently discontinued their participation in elite competitive swimming programs. A comparison of these two groups indicated that there were no differences in the age at which the swimmers had started their participation in the sport of swimming. However, those who had subsequently dropped out had started intensive training activities at an earlier age (e.g.,
had gone to their first training camp at a younger age), had reached the top level of competitive status at an earlier age, had taken less time off during their competitive career and had engaged in fewer extracurricular activities (outside of swimming) during their competitive swimming career. Furthermore, the group who had discontinued reported that they had been the youngest in their age group more often than did the group who had continued their swimming participation. Fraser-Thomas et al. concluded that the results of their study support the idea that young athletes who start intensive training too early and who specialize at early ages may be at greater risk for discontinuation than are those athletes who do not do those things.

In addition to the structure of sport as a possible cause or correlate of burnout in young athletes, other research studies have identified social influences as an important component of the burnout process. In particular, researchers (e.g., Goodger et al., 2007; Gustafsson et al., 2008; Raedeke & Smith, 2004; Raedeke et al., 2002; Udry, Gould, Bridges, & Tuffey, 1997) who have conducted studies to identify factors that are related to high levels of burnout in athletes have found that lack of social support or lack of satisfaction with the frequency and amount of social support available from important individuals in the athletes' lives are critical components. These important individuals include teammates, friends or peers, parents, and coaches. Although all of these individuals may have a very important role to play in ensuring that athletes have a positive experience within the sport context, the current research project focused particularly on the role coaches play. In the next section of this chapter, the research and theory corresponding to the impact of coaches on the psychosocial health and well-being of athletes is reviewed. This research was then used to provide a rationale and framework for examining the link between collegiate coaches' behaviors and leadership styles and their athletes' level of burnout and motivational orientation.

COACHING BEHAVIOR AND ATHLETES' WELLBEING

Researchers in the sport psychology field who have focused on the role of the coach typically begin their research studies with the assumption that coaches do, in fact, influence the performance and behavior of their athletes as well as their psychological and emotional well-being. Thus, research conducted in this area is typically designed to identify the coaching behaviors, leadership styles, practices, and techniques that will most enhance athletes' performance and psychosocial well-being. Barrow (1977) defined leadership effectiveness as the “behavioral process of influencing individuals and groups toward set goals” (p. 232). As a result of this broad description, the studies completed in this research area have examined a number of aspects of coaching behavior such as the goals coaches set for themselves and their players, their decision-making processes, motivational techniques, and the types of relationships they develop with their athletes. These topics, among many others, have then been related to the overall impact they have on the athletes.

In general, coaching effectiveness has been operationalized by two different outcome measures: athletes’ performance results and psychological responses experienced by athletes (Horn, 2008). Though many important studies have extended
current knowledge on the relationship between successful coaching and performance outcomes, the focus in this particular paper is on those research projects that have been conducted to explore coaching effectiveness in terms of its impact on athletes' psychosocial growth and development. In the following section, some theoretical models that have been developed to provide an overall perspective on coaching effectiveness are identified and briefly reviewed.

Theoretical Models of Coaching Effectiveness

Within the field of sport psychology, the study of coaching effectiveness has a relatively long history (see reviews of this literature by Chelladurai, 2007; Gilbert & Trudel, 2004; Horn, 2008). Much of this research has been based on one of several theories or models of leadership effectiveness in the sport domain. The two earliest and most frequently used models include the Multidimensional Model of Leadership (Chelladurai, 1978, 2007) and the Mediational Model of Leadership (Smoll & Smith, 1989). More recent models include ones developed by Duda (2001), Jowett (2005), Horn (2008), and Mageau and Vallerand (2003). Although these models differ somewhat in format and content, they generally all hypothesize that coaches' leadership styles and behaviors (either actual or perceived) have a direct effect on athletes' self-perceptions and motivational orientations.

The relationship between coaching behavior and athletes' psychosocial growth is depicted in Horn's (2008) working model of coaching effectiveness (see Figure 1). According to this model (which was developed as a compilation of previous theories of coaching effectiveness and thus is similar in content and intent to the models identified in the previous paragraph), the behaviors that coaches exhibit in the sport context (Box 5) are actually determined by factors in the sport and sociocultural environment as well as by the coaches' own personal characteristics. Whatever behaviors coaches exhibit are hypothesized to have a direct impact on athletes' performance and behavior (Box 6). Thus, the way in which coaches organize practices and how they teach the skills can significantly affect their athletes' performance. In addition, however, athletes' perceptions or interpretations of their coaches' leadership styles and behaviors (Box 8) affect the athletes' self-perceptions, beliefs, and attitudes (Box 9). In turn, these self-perceptions affect the athletes' level and type of motivation. This model, then, similar to the others identified earlier in this paper, provides a framework for understanding how coaches' behaviors can ultimately affect their athletes' performance and psychosocial growth and development.

Over the past three decades, a fairly large number of quantitatively-based studies have been conducted in an attempt to identify the coaching behaviors and leadership styles that will be most effective in enhancing their athletes' psychosocial wellbeing. These studies have focused on different dimensions of coaches' behavior and leadership styles and thus have used different types of instrumentation to measure these dimensions. In the next section, these different dimensions of coaching behavior are briefly described.
Important Dimensions and Measures of Coaching Behavior

The three most common dimensions of coaching behavior that have been used to examine coaching effectiveness are: leadership style, feedback patterns, and motivational climate. These dimensions and the instruments that have most commonly been used to measure them are described in the following paragraphs.

Leadership Style

The first instrument that was developed to assess coaches' leadership style was created by Chelladurai and Saleh (1978; 1980). Their Leadership Scale for Sports (LSS) is composed of five subscales that measure the coach’s decision-making style (Democratic and Autocratic), his or her motivational tendencies (Social Support and Positive Feedback), and instructional technique (Training and Instruction). Coaches that score high on the subscale that measures democratic decision-making would typically involve the student-athletes in team decisions (i.e., goal setting, team rules, travel itineraries, etc.) and promote autonomy among the team members. In contrast, coaches whose scores label them as high on the “autocratic” subscale would make decisions for the team without involving the players in the process. Coaches who show a great deal of care and concern for individual athletes, who make it a priority to foster an atmosphere that values each person, and who try to provide assistance to all of the athletes in developing positive relationships with themselves and their teammates would typically score high on the social support subscale. Along similar lines, coaches who score high on the positive feedback subscale tend to encourage and praise their athletes after positive behaviors are displayed while ignoring or re-directing any inappropriate actions or skills.

A second perspective on ways to conceptualize and measure coaches’ leadership style is based on self-determination theory as it was applied to the sport setting (e.g., Mageau & Vallerand, 2003; Vallerand, 2001). Using this approach, there are two different coaching styles: autonomy-supportive and controlling. According to Mageau and Vallerand, coaches who use the autonomy-supportive leadership style exhibit such behaviors as: (a) providing choice to their athletes within specific limits; (b) providing athletes with a rationale for their rules, decisions, and practices; (c) showing concern and caring for individual athletes; (d) providing the opportunity for athletes to be independent, again within specific limits; (e) using non-controlling feedback; (f) limiting the use of tangible rewards; and (g) minimizing behaviors which promote a performance-oriented or ego-oriented atmosphere. In contrast, coaches who use the controlling leadership style exhibit behaviors that are intended to demonstrate their control over their athletes (e.g., use of coercive motivational techniques, constant emphasis on performance outcomes, high frequencies of punishment, provision of controlling feedback). From a self-determination theoretical perspective (e.g., Deci & Ryan, 2000; Vallerand, 2001), an autonomy-supportive leadership style is hypothesized to lead to high perceptions of competence, autonomy, and relatedness in athletes, which, in turn leads to a self-determined motivational orientation while a controlling coaching style would result in the opposite pattern (i.e., low perceptions of competence, autonomy, and relatedness along with a non-self-determined form of motivation). To measure coaches' leadership styles
using this self-determination approach, two instruments have been developed and used in the sport literature. Pelletier, Fortier, Vallerand, and Briere (2002) developed the Autonomy-Supportive Questionnaire. A second instrument, the Sport Climate Questionnaire (SCQ), has also been developed by individuals at the University of Rochester. This scale has recently been tested for reliability and validity (Amorose & Anderson-Butcher, 2007).

Feedback Patterns

A second dimension of coaches' behavior that has been examined in the coaching effectiveness literature is the type of feedback that coaches provide to their athletes in practice and competitive events. The most well-known of these instruments is the one developed by Smith, Smoll, and Hunt (1977). Their instrument was identified as the Coaching Behavior Assessment System (CBAS) and is actually an observational instrument that relies on trained observers to either directly observe coaches and record the type of feedback they provide or use videotaped sessions of the coach to record the same data. The CBAS breaks the term “coaching behaviors” into two categories: spontaneous (i.e., feedback that is provided to individual athletes or groups of athletes with no reference to players’ behaviors) and reactive (i.e., coaching feedback that is given to individual athletes or groups of athletes in response to athletes’ actions). These two broader categories are then divided into 12 subcategories of coaching behaviors, which are directly evaluated through the assessment system. Coaching behaviors associated with general technical instruction (not in response to player performance), general encouragement, team organization, and general communication (not related to games or practices) would all be recorded by the researcher under the spontaneous category. In addition, according to the CBAS, a coach displays either reinforcement or non-reinforcement behaviors in response to a successful performance while exhibiting mistake-contingent encouragement, mistake-contingent technical instruction, punishment, punitive technical instruction, or he/she ignores the mistake when reacting to performance errors. Also, the CBAS specifies one final coaching response subcategory, keeping control behaviors, after athletes show actions that would be considered misbehaving or off-task.

Due to the rigorous training and data collection procedures along with the extensive time demands and difficulty in using the instrument with other sports (outside of Little League baseball), the CBAS was adapted into questionnaire form based on and consistent with, the original, above-mentioned CBAS coaching behavior categories (Smith et al., 1977). The Coaching Feedback Questionnaire (CFQ) assesses athletes’ perceptions of their coaches’ behaviors instead of a third-party person (researcher) attempting to directly measure and interpret coaches’ behaviors. The only item added to this questionnaire that was not listed in the CBAS is the reinforcement based on technical instruction category as suggested by Horn (1985).

The CBAS, the questionnaire versions of the CBAS (CFQ), as well as other instruments developed to assess coaches’ feedback patterns (see review of these instruments by Horn, 2008) have been used by researchers in their attempt to identify the forms of coaching feedback that will be most effective in enhancing their athletes'
performance and psychosocial growth. Some of this research will be reviewed later in this chapter.

Motivational Climate

In 2000, another heavily used measurement tool was created to assess the type of motivational climate coaches create and implement in practice and competition. The Perceived Motivational Climate in Sport Questionnaire -2 (PMCSQ-2; Newton, Duda, & Yin, 2000) asks athletes to indicate the degree to which their team climate, as created or initiated by the coach, is marked by mastery-oriented (task) or performance-oriented (ego) goal perspectives. A task-oriented climate, as created by the coach, places emphasis on each player’s role on the team and rewards individual athletes' efforts while an ego-oriented climate places primary emphasis in practices and competitive events on outcome or performance (i.e. winning). Furthermore, an ego-oriented climate typically is one in which only the "stars" are recognized, and players on the team are constantly "pitted" against each other. In general, athletes involved in a mastery climate may be more willing to help each other during the moments where skill and drill execution is necessary in both practice and game situations while players in performance-based environments are constantly competing against with another thus leading to a hierarchical structure.

The large majority of research studies in the coaching effectiveness literature have employed the LSS, one of the two Autonomy-Supportive Questionnaires, the CBAS/CFQ, or the PMCSQ-2 in the data collection phases of the studies. In the following section, the results from this research are summarized.

Research on Coaching Effectiveness

The research studies that have been conducted over the past three decades using the instrumentation described in the previous section have provided continuing support for the important role that coaches play in the psychosocial growth and development of their athletes (see reviews by Chelladurai, 2007 and Horn, 2008). In particular, effective coaching behaviors identified by Horn in her review of the research to date include: high frequency of training and instructional behavior, high level of social support and positive feedback, use of a democratic or autonomy-supportive leadership style, the creation of a mastery-oriented motivational climate, and provision of positive, supportive, and information-based feedback in response to athletes' performance successes and failures. In contrast, Horn also identified coaching behaviors that may be detrimental to athletes' psychosocial growth. These detrimental behaviors include: high frequencies of ignoring athletes' skill errors, high frequency of non-informational and punishment-oriented feedback, use of an autocratic or controlling leadership style, the creation of a performance-oriented (ego-involving) motivational climate, and failure to recognize or respond to athletes' performance successes. The effectiveness or ineffectiveness of these coaching behaviors has been linked to athletes' self-perceptions (e.g., perceived
competence) and affective reactions (e.g., anxiety, perceived stress) as well as to athletes' perceptions of their team dynamics (e.g., perceived team cohesion, collective efficacy).

Of particular interest to the current study, coaching leadership styles and behaviors have also been linked to athletes' motivational orientation. In an early study, Amorose and Horn (2000) found that college athletes who perceived that their coaches used an autocratic leadership style and who gave high levels of punishment-oriented feedback not accompanied by skill-relevant information had lower levels of intrinsic motivation than did those athletes whose coaches were perceived to be more democratic and to give higher levels of informational or corrective feedback. In a follow-up study, Amorose and Horn (2001) found that first year college athletes whose levels of intrinsic motivation increased over the course of their first competitive season rated their coaches as being low in autocratic behavior and as providing high frequencies of training and instructional behavior.

More recently, Hollembeak and Amorose (2005) used structural equation modeling (SEM) to show that college athletes' perceptions of their coaches' leadership style directly predicted athletes' perceptions of competence, autonomy, and relatedness. In turn, these self-perceptions directly affected athletes' level of self-determined motivational orientation. Specifically, athletes who perceived that their coaches used an autocratic leadership style were lower in perceived autonomy (sense of personal control) and relatedness and thus, also, scored lower on self-determined motivation while athletes who perceived their coach to use a democratic style exhibited higher levels of perceived autonomy and a more self-determined or intrinsic level of motivation.

In a follow-up study, Amorose and Anderson-Butcher (2007) administered surveys to over 500 high school and collegiate athletes to test the links specified in self-determination theory (Deci & Ryan, 2000; Vallerand, 2001). Using structural equation modeling, these researchers found that athletes who perceived their coaches to use an autonomy-supportive leadership style also scored high on perceived competence, autonomy, and relatedness. These high self-perceptions, in turn, were linked to a self-determined (intrinsic) form of motivational orientation.

Other researchers (e.g., Reinboth & Duda, 2006; Sarrazin, Vallerand, Guillet, Pelletier, & Cury, 2002) have investigated links between the type of motivational climate that coaches create in practice and competitive contexts and athletes' perceptions of competence, autonomy, and relatedness as well as their type and level of motivational orientation. The results from these studies show that a coach-initiated task- or mastery-oriented climate is more conducive to the development of high self-perceptions and a self-determined motivational orientation than is a performance- or ego-oriented coach-created climate.

In general, then, the research to date provides strong evidence that coaches' behaviors (e.g., their leadership styles, feedback patterns, and the type of motivational climate they create) do have a significant impact on their athletes' self-perceptions and motivational orientation. It does seem likely, then, that coaches' behaviors may also have a significant effect on their athletes' levels of burnout. Only a few studies, however, have been conducted to examine this link. These studies are reviewed in the following section.
Coaching Behavior and Athlete Burnout

Quite possibly the earliest study in this area was conducted by Vealey and her colleagues (Vealey, Armstrong, Comar, & Greenleaf, 1998). These researchers had several study purposes but were primarily interested in the link between college athletes’ burnout and anxiety late in their competitive season with their perceptions of various coaching behaviors displayed by their own head coach. Vealey et al. focused on the athletes’ perceptions of their coaches’ use of praise/dispraise, autocratic style, emphasis on winning versus development, level of empathy, and ability to communicate. One hundred and forty nine athletes and twelve coaches participated in the survey from universities representing all competitive NCAA divisions across the Midwest, and all of the athletes were either softball or basketball players. All athletes completed the EABI (Eades, 1990) and the Coaching Behavior Inventory (Vealey, Chabot, Walter, & Strait, 1996) so that the researchers could examine an hypothesized link between the athletes’ perceptions of their coaches’ behaviors and the level of burnout the athletes themselves reported. The athletes were also asked to take the Relationship Inventory (Barrett-Lennard, 1962) to gain an accurate assessment of their perceptions of their coaches’ levels of empathy.

The results from this study (Vealey et al., 1998) revealed that almost all of the coaching behavior variables (use of praise/dispraise, empathy, autocratic style, emphasis on winning) contributed significantly to the relationship between coach behavior and athlete anxiety and burnout, with the coach’s level of empathy being the best predictor. Almost 22% of the variance in athlete burnout was predicted by the measured coaching behaviors, which is both meaningful and significant in statistical terms. In summary, then, these researchers found that the athletes scoring higher on burnout dimensions such as negative self-concept, emotional/physical exhaustion, psychological withdrawal, and feelings of devaluation perceived their coaches as demonstrating an autocratic coaching style, placing an emphasis on winning over all else, emphasizing dispraise, and being less empathetic.

A second study that examined the relationship between coaching behavior and athletes’ level of burnout was conducted by Price & Weiss (2000) with a sample of high school soccer coaches (N=15) and their female athletes (N=193). Coaches in this sample were asked to fill out a modified version of the Maslach Burnout Inventory (MBI Form Ed; Maslach & Jackson, 1986) in order to provide a measure of their own (the coaches' level of burnout) while the athletes completed the Leadership Scale for Sports (LSS; Chelladurai & Saleh, 1980) to assess their coaches’ behaviors, the 5-item subscale of the Adolescent Self-Perception Profile (Harter, 1988) to assess their perceived soccer competence, the Sport Anxiety Scale (SAS; Smith, Smoll, & Schutz, 1990) to measure their competitive trait anxiety, Raedeke’s (1997) 21-item instrument to measure sport burnout, and an athlete enjoyment scale (Raedeke, 1997; Scanlan, Carpenter, Schmidt, Simons, & Keeler, 1993), which was utilized to evaluate athletes’ levels of overall enjoyment in playing high school soccer.

The results from this study (Price & Weiss, 2000) showed that coaches who reported higher levels of burnout were perceived by their athletes to provide less skill instruction, a decreased team structure and a reduction in practice difficulties. The
athletes also perceived these coaches as showing less care and concern for them and as frequently withdrawing from interactions with their athletes. However, athletes also reported these coaches as allowing more input from the athletes in the decision-making process. In regard to the effects of different types of coaching behaviors on athletes' levels of anxiety and burnout, the results showed that athletes who perceived that their coaches provide higher frequencies of training and instruction, social support, positive feedback and who used a democratic rather than an autocratic style reported lower levels of burnout and less anxiety than did athletes whose coaches exhibited the opposite leadership style and behaviors.

A third somewhat related study was conducted by Reinboth and Duda (2004) to examine the effects of motivational climate on adolescent athletes' self-perceptions and physical well-being. Their study participants included two hundred and sixty five British teenager male soccer and cricket athletes. These athletes were administered the PMCSQ-2 (Newton et al., 2000) to assess their perceptions of the motivational climate created by their coaches in practice and competitive events. In addition, the researchers also used other questionnaires to measure athletes’ self-esteem and perceived sport ability. Finally, to measure athletes’ level of emotional and physical well-being, five items from the emotional/physical exhaustion subscale of the Athlete Burnout Questionnaire (ABQ) (Raedeke & Smith 2001) were used. To provide a measure of athletes’ physical health and well-being, participants were asked to complete a physical symptoms checklist that required them to report the number and type of physical ailments that they had experienced over the past two weeks.

Correlational and regression analyses of the obtained data from this study (Reinboth & Duda, 2004) indicated a strong link between athletes’ perceptions of their team’s motivational climate and their physical and emotional health. Specifically, athletes who perceived that their coaches created a highly ego-involving climate scored significantly higher on emotional and physical exhaustion and also exhibited a higher number of physical ailments experienced over the previous two weeks. In contrast, athletes’ perceptions of the degree to which their coaches created a task-oriented motivational climate were negatively related to their ratings of physical and emotional exhaustion and physical ailments.

As the three studies (Price & Weiss, 2000; Reinboth & Duda, 2004; Vealey et al., 1998) cited in the previous paragraphs show, there does seem to be a possible link between coaches' behavior and the burnout levels experienced by their athletes. However, these three studies were conducted using a cross-sectional research design, and two of the three studies were conducted with younger (adolescent) athletes. As noted in a previous section of this chapter detailing the results of the research on burnout levels in elite college athletes, a more longitudinal approach may be needed in order to examine possible changes that occur across a season in athletes’ levels of burnout and then to assess how those changes are related to coaches' behaviors. A few studies have recently been conducted using a more longitudinal design. Although most of these studies did not directly assess the effects of different types of coaching behavior on athletes' burnout levels, they did address some related issues. Thus, those studies are reviewed in the following paragraphs.
As a follow-up to their 2004 study, Reinboth & Duda (2006) conducted a more longitudinal study to test the relationship between athletes’ perceptions of the coach-created motivational climate and athletes’ level of intrinsic motivation and physical and emotional well-being. The participants involved with this study included 128 athletes from a university in England who participated in two data collections over a five-month period. The first data collection took place during the first six to eight weeks of the competitive season, and the second data collection took place during the last several weeks of the season. The athletes in this study had been involved in their sport for an average of five years and participated in sports ranging from football, rugby, netball, lacrosse and hockey. Data collection procedures involved the administration of several self-report questionnaires. The PMCSQ-2 was selected to measure the coach-created motivational team climate. The Subjective Vitality Scale (SVS) (Ryan & Frederick, 1997) was used to measure the extent to which athletes feel physically and mentally aware during participation in sport (a construct that may be somewhat related to the emotional and physical exhaustion subscale from the ABQ). Other questions/items were selected or developed to measure athletes’ level of intrinsic motivation, perceived autonomy, competence, and relatedness. Athletes’ physical well-being was measured through a 9-item physical checklist, in which the athletes indicated the extent to which they experienced these symptoms over the past two weeks.

The study results (Reinboth & Duda, 2006) revealed that the coaches’ creation of a task-oriented team climate was predictive of increases over the season in athletes’ perceptions of autonomy, competence, and relatedness. Such increases in athletes’ self-perceptions were, in turn, predictive of increases in athletes’ level of intrinsic motivation. In contrast, a coach-created ego-oriented team climate was negatively linked to athletes’ perceptions of relatedness and their levels of intrinsic motivation. Furthermore, a coach-created task-oriented motivational climate was predictive of increases in athletes’ perceptions of their vitality (i.e. perceived physical and mental vigor and alertness).

Two studies (Pelletier, Fortier, Vallerand, Tuson, & Briere, 2001; Sarrazin, Vallerand, Guillet, Pelletier, & Cury, 2002) have also been conducted using self-determination theory to examine sport dropout. The Pelletier et al. was conducted in Canada with 269 elite swimmers (ages 13-22 years). They measured athletes' motivational orientation (self-determined or non-self-determined) at the beginning of a competitive season. In addition, athletes' were asked to indicate their perception of their coaches' leadership style (autonomy-supportive or controlling). Finally, assessments of athletes' persistence or discontinuation behavior were obtained across a 22-month period. Analysis of the longitudinal results showed that athletes who perceived their coaches to be autonomy-supportive exhibited a more self-determined form of motivation that, in turn, led to a higher tendency for sport continuation. In contrast, athletes who perceived their coaches to be controlling in their leadership style exhibited a more external or non-self-determined form of motivation that, then, led to lower levels of sport persistence (i.e., higher rates of sport drop-out).

Sarrazin et al. (2002) also conducted a longitudinal study with a sample of 335 adolescent female handball players (age range from 13 to 15 years). They assessed coaches' behavior by administering the PMCSQ to measure the type of motivational climate that athletes perceived their coaches to create. In addition, they also measured
athletes' perceptions of competence, autonomy, and relatedness, along with motivational orientation, and athletes' perceived intentions to continue their sport participation. After a period of 21 months, the researchers obtained information as to players' status in the sport. Analysis of the data revealed that athletes who perceived their coaches to create and maintain a task-involving climate had higher perceptions of competence, autonomy, and relatedness. These high self-perceptions directly predicted more self-determined levels of motivation and lower intentions to dropout of the sport. Furthermore, after 21 months, these athletes exhibited less actual dropout rates. In contrast, athletes who perceived their coaches to create an ego-involving climate had lower self-perceptions, less self-determined motivational levels, higher dropout intentions, and after 21 months, a higher dropout rate.

Finally, in one of the only studies to directly assess the relationship between coaching behavior and burnout levels using a longitudinal research design, Lemyre, Hall, and Roberts (2008) conducted a study to test the predicted relationship between social cognitive motivational variables at the beginning of a competitive season and burnout levels at the end of the season. Elite winter sport athletes (N=141, mean age = 20.1 years) completed a comprehensive motivational questionnaire packet at the start of their season and ended their year by filling out the ABQ (Raedeke & Smith, 2001). Analyses of the results revealed that high levels of burnout at the end of the season were significantly predicted by a set of motivational variables. Specifically, the results showed that when elite athletes who demonstrate perfectionist traits are immersed in an achievement environment that encourages self-validation through the demonstration of ability (a coach-created ego- or performance-oriented motivational climate), the risk for burnout is significantly raised. The results also suggest that athlete burnout interventions may be helpful when they target the achievement environment and attempt to alter the types of goals athletes are setting as they attempt to validate themselves through their achievement in sport.

In general, then, the results of the research reviewed in this section provide some support for the idea that coaches' behavior (leadership styles, motivational climate, and feedback patterns) may be related to their athletes' levels of burnout. However, some of these studies (e.g., Price & Weiss, 2000; Reinboth & Duda, 2004; Vealey et al., 1998) were cross-sectional in research design. That is, they assessed the relationship between athletes' levels of burnout and their perceptions of their coaches' behavior at only one point in the competitive season. Other studies (e.g., Pelletier et al., 2002; Sarrazin et al., 2002) did not directly assess athletes' levels of burnout but rather examined athletes' behavioral intentions to discontinue and/or their actual dropout behavior. In addition, many of the studies cited in this section used adolescent samples. The one study that did assess burnout in a sample of elite college-aged athletes (Lemyre et al., 2008) included only individual sport athletes (skiing, speed skating) from Norway and only measured burnout levels in athletes at the end of the competitive season. Thus, there appears to be a need for a longitudinal study conducted to examine changes in burnout levels in a sample of collegiate athletes, with particular emphasis on the role of the coach in explaining observed changes in burnout.

To meet this need in the research literature, the primary purpose of the current study was to measure levels of burnout in a sample of female intercollegiate athletes at
both early and late season timepoints and then to determine if changes in athletes' burnout levels over the season could be predicted, or explained by, their perceptions of their coaches' leadership styles and feedback behaviors. A secondary study purpose was to determine if the changes that occur in athletes' burnout levels over a competitive season could be correlated with changes in their motivational orientation profiles. Thus, this study was primarily based in the self-determination approach to burnout and dropout levels in collegiate female athletes.

Based on the research and theory reviewed in previous sections of this paper, it was hypothesized that at least some of the female athletes in this study would show changes in their burnout profiles from the beginning to the end of the season. It was also hypothesized that such changes in athletes' burnout levels would be significantly explained or predicted by their perceptions of their coaches' leadership style. Specifically, it was believed that athletes who perceived their coaches exhibited controlling and/or autocratic leadership styles and provided high frequencies of punishment-oriented and non-informational feedback would show increases in burnout levels from early to late season. In contrast, it was hypothesized that athletes who perceived that their coaches exhibited an autonomy-supportive and/or democratic leadership style and provided high frequencies of positive and informationally-based feedback would show decreases in (or maintenance of low) burnout levels. Based on self-determination theory, it was also hypothesized that the changes that occurred in athletes' levels of burnout and motivational orientation from early to late season would be related (i.e., increases in non-self determined motivation would be correlated with increases in burnout levels).
CHAPTER THREE

METHODOLOGICAL PROCEDURES

The primary purpose of this study was to assess burnout and motivational levels in a sample of collegiate female athletes over the course of a competitive season and to determine if changes in athletes’ burnout levels are predicted by their perceptions of their coaches’ leadership styles. A secondary study purpose was to determine if the changes in burnout and motivational levels across a season were correlated with one another.

Overview of Study Design

To examine the above-mentioned issues, a series of paper and pencil questionnaires assessing athlete burnout levels and motivational orientation were administered to a sample of intercollegiate female athletes at two different time points during their competitive season (Wave 1 and Wave 2). The student-athletes completed Wave 1 surveys during the first few weeks of their season while the Wave 2 surveys were completed during the last weeks of their competitive season (prior to any post-season events or tournaments). In addition, at the second data collection time point (Wave 2), additional questionnaires were administered to the athletes in order to assess their perceptions of their coaches’ leadership style and feedback behaviors as exhibited over the course of the season. Information regarding each team’s overall success (as defined by wins and losses) was obtained via athletic websites maintained by the university’s athletic departments. In rare cases where that information was not available, head coaches were, once again, contacted with regards to their win-loss record to ensure accurate data were collected. Although the study procedures include longitudinal assessments, the study design remained primarily correlational since no interventions took place and the study did not contain any comparison groups (e.g. college aged non-athletes; male intercollegiate athletes). The Miami University Committee for the Protection of Human Subjects reviewed and approved all research procedures prior to the time when initial contact was made with the head coaches and subsequent data collection procedures began.

Study Participants

The participant sample was composed of intercollegiate female athletes from several NCAA Division I and III universities in various regions of the United States (i.e. Midwest, South, Northwest). In Wave I, 102 athletes from 4 different sports (17% from tennis, 9% from swimming/diving, 55% from basketball, and 19% from Track & Field) completed the questionnaires. However, only 44 of these 102 student-athletes completed the second phase (Wave 2 surveys). Thus, the results reported in this project will only include those 44 athletes. This final group of participants ranged in age from 18 to 22 and represented three different sports (23% from swimming/diving, 32% from basketball, and 45% from track and field) and two different NCAA divisional levels (I: 46% and III: 54%). Most of these athletes were Caucasian (n=81%) with other athletes self-identifying as Asian-American (n=9%), Hispanic (n=5%), and African-American
Each of the academic levels was represented in the sample: freshmen (n=36%), sophomores (n=27%), juniors (n=16%), seniors (19%), and 5th year seniors (2%). Chi-square comparisons of the demographic characteristics of the 44 who completed both phases of the study and the 58 who completed only Wave I showed no significant differences except in type of sport, with the athletes who completed only Wave I questionnaires including 10 tennis players. In contrast, the 44 who completed both waves did not include any tennis athletes.

Data Collection Procedures

The recruitment of potential participants began with a member of the research team contacting coaches of Division I and III varsity athletic teams via e-mail or phone before, or during the early stages of their competitive seasons (see “oral script” in Appendix A). The purpose and procedures of the study were explained to coaches, and those who agreed to participate were then asked to schedule an initial (early season) data collection session with all of the student-athletes on their team. This data collection session was organized according to the coach’s and team’s convenience around team meetings, practice sessions, lifting times, and all other previously scheduled team events. And, all of these initial collection times (Wave 1) were conducted during the first few weeks of the official NCAA competitive season.

During the first data collection process, the researcher started the meeting by providing the athletes with both verbal and written explanations of the study purpose and procedures (see athletes script in Appendix B). At this time, it was made known to the athletes that their participation in this study was not required and that they could, at any point, withdraw from the study without penalty. Participants were also assured their names and individual responses would remain anonymous at all times during the research process. Coaches were not permitted to observe the data collection procedures. After learning of the above-mentioned information, all of the players who chose to participate were asked to complete a questionnaire packet as honestly and as thoroughly as possible. Once an athlete finished the packet, she was free to leave. Pilot testing prior to actual data collection indicated the timeline for these sessions should have ranged from 20 to 25 minutes. This held true during the actual data collection procedures.

So that athletes’ pre- and post-season measures could be compared, every athlete selected a “code name” based on either the name of her childhood pet or elementary school. This self-selection of names preserved anonymity and prevented the possible identification of individual athletes and their responses. To prevent the duplication of code names, the researcher asked, in the beginning of the session, if any siblings existed on the team. The Wave 1 packet consisted of a demographic questionnaire along with the BSRQ (to assess motivational orientation) and the ABQ (to assess burnout level).

The second data collection session was, once again, scheduled through coaches and took place at the end of the regular competitive season prior to post-season play. All of these final meetings occurred within the last couple of weeks of the teams’ seasons (i.e. within the final two to three weeks of the regular season). During this session, the researcher reminded the athletes of the research purpose and procedures and re-assured them that their participation in this study was completely voluntary and their ability to
withdraw at any point for any unidentified reason without penalty was still intact. The participants were also reminded their anonymity remained as they were asked to write their code names from Wave 1 on the top of their Wave 2 packets. The Wave 2 packet was comprised of the BSRQ (to assess motivational orientation), the ABQ (to assess burnout level), the CFQ (to assess athletes’ perceptions of their coaches’ feedback patterns) and the LSS and the Sport Climate Questionnaire (SCQ) (to assess athletes' perceptions of their coaches' leadership style) along with a series of questions asking athletes to evaluate their seasonal performance success.

At the end of each team’s competitive season, the primary researcher collected seasonal performance data from each university's athletic website. The information gathered included overall winning percentage and final conference standings from both the season that was just completed (i.e., 2008-2009) as well as the previous year’s (2007-2008) results.

Instrumentation

A series of self-report questionnaires were administered at two time points during the season (early and late). These questionnaires are described in the following sections.

Demographic Information

Each participant was asked to complete a demographic questionnaire (see Appendix C). Questions were selected to assess the athlete’s age, gender, ethnicity, year in school, and sport. In addition, athletes were asked to identify their code name, coach’s gender, college division (i.e. Division I, II, III, NAIA, other), and athletic scholarship status. This demographic questionnaire was given to all athletes only at the first data collection time point.

Performance Evaluation Information

In the Wave 2 packet, in addition to completing other questionnaires, athletes were asked to write their code name and answer three questions scored on a 10-point Likert scale (see Appendix D). Specifically, they responded to questions such as “What is your current level of enjoyment in your sport?” with answers ranging from Very High (10) to Very Low (1). The following two questions asked participants to assess how successful they were as individuals in meeting their goals over the season and how successful they perceived their team to be in meeting its group or team goals this season. Answers ranged from Very Successful (10) to Very Unsuccessful (1). These three questions along with the “competitive season success assessment” served as measures of seasonal performance success. The performance evaluation questionnaire was administered to all athletes during the late season data collection time point.
To measure athletes' levels of burnout, the Athlete Burnout Questionnaire (ABQ) developed by Raedeke (1997; Raedeke & Smith, 2001) was administered to athletes at both the early and late season time points. The ABQ (see Appendix E) consists of 15 items intended to quantify the athlete burnout syndrome according to its key characteristics of reduced accomplishment, sport devaluation, and emotional/physical exhaustion (Eklund & Cresswell, 2007). The stem for each item is “How often do you feel this way?” Each response is scored on a 5-point Likert scale with “almost never” (1), “rarely” (2), “sometimes” (3), “frequently” (4), “almost always” (5) representing all possible responses. Raedeke and Smith (2001) as well as Cresswell and Eklund (2006) have demonstrated both reliability and validity for the ABQ as they have administered the questionnaire to athletes both in and out of North America (see summary of these results in Eklund & Cresswell, 2007).

The Sport Motivation Scale (SMS) (Briere, Vallerand, Blais, & Pelletier, 1995) was originally developed in French but was later translated for work with English-speaking athletes. Its subscales measure amotivation, external regulation, introjected regulation, identified regulation, IM-to know, IM-toward accomplishments, and IM-to experience stimulation.

Although the SMS garnered initial support (Pelletier et al., 1995), more recently, some researchers have suggested that the SMS is in need of major revisions (Mallett, Kawabata, and Newcombe, 2007). For example, Mallett et al. (2007) looked at work that questioned the internal consistency (Martin & Cutler, 2002) and factorial validity (Riemer, Fink, & Fitzgerald, 2002; Shaw, Ostrow, & Beckstead, 2005) of the associated subscales. Though Pelletier et al. (2007) cite a meta-analysis conducted by Chatzisarantis, Hagger, Biddle, Smith, and Wang (2003) as supporting the validity of the SMS while also discussing its potential nomological validity (degree to which a construct behaves as it should), Lonsdale, Hodge, and Rose (2008) suggest there is also evidence that SMS scores “have not been related in a predictable manner to scores derived from measures of motivational consequences” (p. 326).

As a result, Lonsdale et al. (2008) conducted four studies to modify the SMS in order to address the measurement concerns. The scale that resulted from their psychometric work has been named the Behavioral Regulation in Sport Questionnaire (BRSQ). To test its psychometric properties, a group of potential items was created based on Ryan and Deci’s (2002) outline of behavioral regulation, Vallerand’s (1997) three forms of intrinsic motivation, as well as items that athletes were believed to regard as meaningful. Then, a factor analysis was conducted to eliminate any items that cross-loaded or were unintended (Study 1). In study 2, factorial validity and reliability of the BRSQ as well as nomological validity were examined. Study 3 provided further support for the nomological validity of the BRSQ as the relationship between its subscales and athlete burnout and flow scores were examined. Furthermore, in Study 3, the internal consistency, factorial validity, and nomological validity of scores from the BRSQ were
compared to the SMS (Pelletier et al., 1995), and the revised version of the SMS, the SMS-6, created by Mallett, Kawabata, Newcombe, Otero-Forero, and Jackson (2007). Finally, a test-retest examination with regards to the BRSQ was completed (Study 4) (Lonsdale et al., 2008).

The results from these four studies showed the BRSQ created by Lonsdale et al. (2008) to be an initially valid and reliable measurement tool. Specifically, the BRSQ-8 is a 32-item assessment questionnaire that measures the eight forms of regulation. This study also indicated that, when compared to either the SMS or the SMS-6, internal consistency and factorial validity associated with BRSQ scores were equal or superior. It is also noteworthy that nomological validity evidence associated with the BRSQ was also found to be superior to those found relating to either of the other two previously mentioned measurement tools. Though these are only initial testing procedures and more investigations are necessary, Lonsdale et al. (2008) did find the BRSQ’s psychometric properties to be superior to that found in the SMS or the SMS-6.

The BRSQ was used in this study (see Appendix F) since it was intended for use with “competitive sport participants” (Lonsdale et al., 2008, p. 348) and has shown, at least at this point, to be the best measure of athletes’ sport motivation. This questionnaire was given to all athletes during both the early and late season data collection time periods.

*Leadership Scale for Sports (LSS)*

The first coaching behavior questionnaire administered was the LSS, which was developed by Chelladurai and Saleh (1978) to measure a variety of leadership styles and behaviors. The LSS (see Appendix G) consists of five subscales. The democratic and autocratic subscales are measures of the coach’s decision making style, while the social support and positive feedback subscales measure a coach’s motivational techniques. The training and instruction subscale measures the coach’s instructional behavior. A total of 40 items make up the LSS. While two versions of the LSS (perceived and preferred coaching behavior) exist, the research team chose to utilize only the perceived version in this study since it was the athletes’ perceptions that were of most interest. Each item was scored on a 5-point scale (always, often, occasionally, seldom, and never) and required athletes to indicate the degree to which their coach exhibited a particular behavior type (e.g. “The coach of my team lets the athletes share in decision making”). Reliability and validity for the LSS has been established in college-aged samples (Chelladurai & Reimer, 1998).

Due, however, to persistent questions regarding the internal consistency of the autocratic subscale (see review by Chelladurai and Riemer, 1998), three items were added to the autocratic subscale for this study. These three items were developed by Price and Weiss (2000) and were found to increase the internal consistency of the autocratic subscale to an acceptable level. Thus, the same three items were added to the LSS for the current study, and the LSS was given to all athletes only during the late season time point.
Sport Climate Questionnaire (SCQ)

A second questionnaire was also used in this study to assess athletes' perceptions of their coaches' leadership style. The Sport Climate Questionnaire (SCQ) (see Appendix H) measures the degree to which athletes perceive that their coaches use an autonomy-supportive versus a controlling leadership style. This scale contains 15 items that assess athletes' perceptions of the degree to which their coaches allow them to contribute to team decisions and practices, encourage their initiative and independence, provide rationales for team decisions and practices, and conveys confidence in them. The scale was developed by individuals at the University of Rochester and has been used in previous studies (e.g., Amorose & Anderson-Butcher, 2007) to assess coaches' leadership style. Again, this scale was only administered at the end of the season time point.

Coaching Feedback Questionnaire (CFQ)

A third questionnaire to assess athletes' perceptions of their coaches' feedback patterns was used. The coaching behavior assessment system (CBAS) (Smith et al., 1977) was modified into questionnaire form (CFQ) (Horn & Glenn, 1988), and it is this version that was used in the present study (see Appendix I). The original purpose of the CFQ was to provide a self-report instrument that assessed athletes’ perceptions of their coaches’ feedback patterns in response to successful and poor performances. It contains a total of 16 items that are divided into eight subscales representing eight different feedback patterns. The three response patterns that pertain to successful performance are praise/reinforcement, non-reinforcement, and reinforcement plus technical instruction while mistake-contingent encouragement, ignoring mistakes, corrective instruction, punishment, and corrective instruction plus punishment represent the five response patterns relating to performance errors. These feedback categories correspond to the original CBAS developed by Smith and colleagues (1977) as does the response pattern “reinforcement plus technical instruction,” which Horn (1985) added to the original CBAS. Every item in the questionnaire form of the CBAS (the CFQ) asks athletes to indicate on a 5-point scale (“very typical” to “not typical at all”) how likely it was that their coach would provide that particular type of feedback during practice and games. Alpha coefficients for individual subscales have ranged from .62 to .91 (Horn & Glenn, 1988).

The current study used three overall CFQ subscales as a result of the principal axis factor analysis performed by Amorose and Horn (2000). This analysis determined the structure underlying athletes’ perceptions of their coaches’ feedback patterns. Statistical results indicated that items loading highly on Factor 1 were part of the reinforcement, reinforcement plus technical instruction, mistake-contingent encouragement, and technical instruction for mistakes subscales. Therefore, Factor 1 was labeled “positive and informational feedback.” Items that loaded highly on Factor 2 were part of the punishment and punishment plus technical instruction subscales, creating a “punishment-oriented feedback” pattern. Results also showed that items that loaded highly on Factor 3 included both the non-reinforcement and ignoring mistakes subscales. The final factor, then, was termed “non-reinforcement/ignoring mistakes.” Thus, the three
overarching CFQ subscales that were used in this study are positive and informational feedback, punishment-oriented feedback, and non-reinforcement/ignoring mistakes.

**Competitive Season Success Assessment**

At the end of each team’s competitive season (including any post-season play), a member of the research team obtained data on the performance success of the team from an official sports website maintained by their athletic departments and/or through contact made with the head coach of that team. Information regarding the end of season winning percentage and conference standings as well as the previous seasons results were collected and recorded from these sites. This performance data (along with the perceived success questions that athletes responded to on the Wave 2 questionnaire, see Appendix D) was included in the current study to provide a multidimensional measure of athletes' level of performance success (actual performance assessments combined with athletes' perceptions of their and their team's seasonal performance success). The results from these assessments were then used as a control variable in the assessment of the relationship between coaching behavior and changes in athletes' levels of burnout over the season.

**Statistical Analyses**

All data obtained from the procedures described above were coded and entered into an SPSS data file. Statistical analyses began with descriptive statistics conducted to inspect the data for potential problems with outliers, lack of linearity, and skewness. Then, multivariate repeated measures analyses were used to assess degree of change in athletes' levels of burnout and motivational orientation across the season. Third, hierarchical regression analyses were conducted to determine if changes in athletes' levels of burnout could be predicted by their perceptions of their coaches' behavior. Finally, multivariate multiple regression and canonical correlation analyses were used to test whether the changes that occurred across the season in athletes' motivational orientation were related to, or predictive of, the changes that occurred in their levels of burnout.
CHAPTER FOUR

RESULTS

As previously mentioned, the primary purpose of this research project was to measure levels of burnout in a group of intercollegiate female athletes at an early and late season time point, and, then, to determine if changes in burnout levels over a season could be predicted or explained by athletes’ perceptions of their coaches’ leadership styles and feedback patterns. A secondary purpose was to determine if the changes in athletes’ burnout levels over a competitive season were correlated with changes in their motivational orientation profiles.

To examine these study purposes and hypotheses, a variety of univariate and multivariate statistical procedures were conducted. The results of these analyses are presented in the following sections. In the first section, results from the descriptive analyses are depicted for all study variables. In the second section, some preliminary results are reported. Specifically, a series of Cronbach’s alpha analyses were conducted to assess the internal consistency of the subscales utilized during this study. Then, two one-way multivariate analyses of variance (MANOVA) were run to compare the athletes who completed Wave I surveys (n=102) with those who filled out both sets of questionnaires (n=44). A third set of preliminary analyses, two repeated measures MANOVAs, were conducted to determine if the student-athletes participating in this study showed changes over the course of the season in their levels of burnout and motivational orientation.

Finally, in the last section, the results of the analyses conducted to examine the major study purposes are described. Specifically, a series of three hierarchical regression analyses were conducted to assess the link between perceived coaching behavior, seasonal success, and athletes’ levels of burnout. A multivariate multiple regression analysis along with a follow-up canonical correlational analysis was used to test whether or not changes in athletes’ levels of burnout across a competitive season could be correlated with, or even predicted by, changes in their motivational orientation.

Descriptive Results

Means, standard deviations, and change scores were calculated for all study variables. The results are presented in Tables 1 through 4.

Table 1 shows the descriptive data for the early(Wave 1) and late season (Wave 2) results from the Athlete Burnout Questionnaire (ABQ; Raedeke, 1997; Raedeke & Smith, 2001) subscales. Since the individual items in the ABQ are scored on a 5-point Likert scale, examination of the athletes’ mean scores on the three subscales can be used to describe where the sample as a whole falls on the full range of the subscale. For the Sport Devaluation subscale, the mean values for the early (M=1.86) and late (M=2.03) season time points are considerably below the midpoint (2.5) of the subscale range. The change score (shown in the last column in Table 1) reveals a small (.17) increase from early to late season in athletes' perceptions of sport devaluation. For the Reduced
Accomplishment subscale the sample mean values at both the early (M=2.2) and late (M=2.33) time points are closer to, but still somewhat below, the midpoint of the scale, and the change score (.13) shows only a small increase in athletes' perceptions of reduced accomplishment from early to late season. In general, these descriptive mean values indicate that the majority of athletes in this study experienced relatively mild levels of burnout, if any, as it relates to having feelings of a reduced sense of accomplishment and sport devaluation. However, it is also interesting to note that the standard deviations for both the reduced sense of accomplishment (early: SD=.72, late: SD=.70) and sport devaluation (early: SD=.71, late: SD=.80) are relatively high, showing there is a large amount of variability in the amount of burnout that individual athletes may have experienced at both time points. So, while some athletes experienced virtually no burnout at any point during their season, other athletes may have experienced moderate to high levels of burnout at both the early and late time points. As for the Physical and Emotional Exhaustion subscale, on average, athletes scored slightly above the midpoint in this burnout domain at both the early (M=2.67) and late (M=2.61) season collection periods. However, in contrast to the increase seen over the season in the other two burnout subscales, the mean scores on the exhaustion subscale showed a slight decrease from early to late season. Again, however, the standard deviations were relatively high, thus suggesting considerable inter-individual variability among the athletes in the sample.

Table 2 provides similar descriptive statistics for the BRSQ (Lonsdale et. al, 2008) subscales. Examination of this data shows the female student-athletes in this study showed the highest mean scores at both the early and late season timepoints on the intrinsic motivation subscales (considerably above the midpoint of 3.5) and the lowest mean scores (considerably below the midpoint) on the least self-determined subscales (e.g., the external regulation and amotivation subscales). However, the change scores (shown in the last column in Table 2) revealed that the athletes as a group showed a decrease from early to late season in all of the intrinsic motivation subscales and a corresponding increase in the external regulation and amotivation subscales. In addition, it is important to note that the standard deviations for all of the motivational orientation subscales and for all of the change scores are relatively large and thus suggest considerable inter-individual variability in athletes' motivational profiles.

Before revealing the descriptive results found from the coaching behavior assessments, it is important to note that when athletes were asked to complete the questionnaires regarding their coaches’ behaviors, they were asked to answer the questions in relation to the coach they had the most interaction with over the season (not necessarily the head coach of their team). This data collection technique was important in this study because in some sports, certain athletes have very little involvement or interaction with their head coach. The descriptive statistics for each of the coaching behavior subscales (LSS, Autonomy-Supportive Coaching Style Questionnaire, CBAS/CFQ) are shown in Table 3. Since the Autonomy-Supportive Coaching Style Questionnaire contains a response range from 1 to 7 with 3.5 being the midpoint of the scale, results from this descriptive data show that, on average, this group of student-athletes perceived their coach as exhibiting characteristics that allowed them to build autonomy and feel in control of their sports/team environment (i.e., the mean score of 4.21 is considerably above the midpoint). However, with a relatively large standard
deviation (SD = 1.56), this questionnaire also shows that while some athletes felt this way about their coach, many others may have felt their coach did not create an autonomy-supportive environment, one in which they were able to participate in decisions and other important team functions. The LSS (Cheladurai & Saleh, 1978), which uses a five-point response format, was designed to measure a variety of coaching behaviors. Based on the descriptive data shown in Table 3, it appears that athletes in this study scored their coaches highest in training and instruction (M=3.37) and positive feedback (M=3.47), showing they felt their coaches provided high frequencies of training and positive feedback, but, again, the standard deviations for both types of coaching behaviors (training and instruction: SD=.78, positive feedback: SD=1.11) remain large. Thus, while some athletes perceived their coaches to be high in these behaviors, others did not. Athletes also ranked their coaches just above the midpoint for both autocratic (M=2.88) and democratic (M=2.72) coaching styles, providing evidence that some coaches were slightly more democratic leaders while others demanded all of the authority and control over their team. Again, standard deviation scores show that some athletes felt coaches were more authoritarian while others felt their coaches were more willing to share authority and create a partnership rather than a dictatorship. Coaches, in this study, were scored lowest by their athletes in the social support domain (M=2.53) meaning athletes felt their coaches exhibited this characteristic the least even though they did score their leaders right around the midpoint (M=2.5) of the scale. The final assessment tool utilized to gain insight into the student-athletes’ perspectives of their coaches’ behavior patterns, the Coaching Feedback Questionnaire (CFQ: Horn & Glenn, 1988) asked athletes to rank their coaches on a 5-point Likert scale based on how typical it was for their coaches to exhibit certain feedback behaviors (see Table 3). The obtained descriptive data for the three CFQ subscales shows that athletes in this study perceived their coaches to provide relatively low levels of punishment and corrective instruction (M=1.89) and comparably higher amounts of reinforcement, reinforcement plus technical instruction, mistake-contingent encouragement, and corrective instruction (M=2.98). However, standard deviations were found to be high meaning that though this was the case for some of the athletes, it was not the experience of all student-athletes in this particular sample. Therefore, even though some coaches may have been perceived as providing lots of encouragement and instruction, others were seen as reacting to mistakes and skill executions more often with punishment.

Descriptive statistics for the end-of-season performance data are provided in Table 4. The first four of these variables represent actual performance outcomes: win/loss percentage for current season, win/loss percentage for previous season, conference/league finish for current season, conference/league finish for previous season. The last three variables represent athletes' self-reported or self-perceived levels of personal performance success, team performance success, and level of personal enjoyment. These self-perceived scores were based on a 10-point scale. Thus, the mean values for these three variables (ranging from 6.45 to 8.14) were above the midpoint (5.0) of the scale, but the standard deviations also reveal some variability between athletes in their self-evaluations. Due to the difficulty in classifying the end-of-season performance scores across team and individual sports, actual performance outcome data were obtained for only 24 of the 44 athletes who completed both Wave 1 and Wave 2 survey packets in this study. However,
correlational analyses looking at the relationship between the actual performance outcome variables (team record scores and conference standing scores) and players’ self-evaluations of their personal and team success revealed significant correlations for the 24 subjects who had this data. That is, athletes’ perceived personal success for the season was significantly and positively correlated with actual team record ($r=.47$, $p < .02$), while athletes’ perceived team success for the season was significantly and highly correlated with actual team record ($r=.72$, $p < .000$). Thus, because perceived team success was highly correlated with actual team success (win/loss percentage for the season), there would have been multicollinearity in the main analyses. So, for the main study analyses, only the three athlete evaluations of their seasonal success (perceived personal season success, perceived team season success, and perceived level of personal enjoyment) were used as a measure of overall performance success.

**Preliminary Analyses**

To assess the internal consistency of the subscales used in this study, a series of Cronbach’s alpha analyses were conducted using the subscale items from the ABQ, BRSQ, LSS, and SCQ. The results of these analyses are presented in Table 5. These alpha coefficients are all above .70. Therefore, all of the subscales utilized in this study exhibited a level of internal consistency that is considered sufficient for psychological research (Cohen, 1988).

Because there was a fairly large number of athletes who completed Wave 1 survey packet but who did participate in Wave 2, a set of preliminary analyses were conducted to compare the athletes who completed the entire study ($n=44$) with those who completed only Wave 1 ($n=58$). Specifically, two one-way MANOVAs were conducted to compare the two groups of athletes on their early season scores. The dependent variables for the two sets of analyses were the athletes’ subscale scores on the early season burnout and motivational orientation subscales. The results for the first MANOVA, using the three burnout subscale scores as the dependent variables, revealed a non-significant main effect for group ($p < .67$). Similarly, the second MANOVA, using the eight motivational orientation subscale scores also indicated a non-significant group main effect ($p < .38$). Thus, the two groups of athletes (those who completed both Wave 1 and 2 of the study and those who only completed Wave 1) did not differ on their early season burnout or motivational orientation scores.

A third set of preliminary analyses were run to determine if the participants in this study showed changes over the season in their levels of burnout and motivational orientation. Specifically, two repeated measures MANOVAs were conducted. In the first repeated measures MANOVA, the dependent variables were the three ABQ subscales, and the repeated measure was time (early and late season). The obtained results revealed a non-significant time main effect, Wilks’ Lambda = .91, $F (3, 41) = 1.30$, $p < .29$. Thus, the study participants, as a group, did not show changes in their levels of burnout from early to late season.

The second repeated measures MANOVA was conducted to determine if study participants’ scores on the nine BRSQ subscales differed across the season. The results
of this MANOVA also revealed a non-significant time main effect, Wilks’ Lambda = .71, F (9, 34) = 1.57, p < .16, indicating that the student-athletes, as a group, did not show changes in their motivational orientation profiles from early to late season.

Despite the fact that the student-athletes in this study did not show significant changes across the season in their levels of burnout or motivational orientations, the standard deviations from the change scores shown in Tables 1 and 2 indicate there was some inter-individual variability within the sample in the degree to which their levels of burnout and motivational orientation changed from early to late season. Thus, the main study analyses were conducted using regression and correlational procedures. These results are presented in the next section.

Main Analyses: Coaching Behavior, Seasonal Success and Athletes’ Levels of Burnout

To determine whether athletes’ levels of burnout at the end of the season were predicted by their perceptions of their coaches’ behaviors and leadership styles, a series of three hierarchical regression analyses were conducted. The dependent variables for these three analyses were the change scores for the three subscales from the ABQ (Athlete Burnout Questionnaire; Raedeke, 1997; Raedeke & Smith, 2001). These change scores (see last column, Table 1) represent the athletes’ late season scores on each burnout subscale minus their early season score on the same subscale. So, the change scores represent the degree to which each athlete’s level of burnout changed over the competitive season. The predictor variables included the three measures of athletes’ perceptions of seasonal success (perceived personal success over the season, perceived team success over the season, and personal level of seasonal enjoyment) and the subscale scores measuring coaches’ leadership style and behavior. Prior to conducting these hierarchical regression analyses, the possibility of multicollinearity among the two sets of predictor variables was assessed by using bivariate correlational analyses. These results revealed that two of the three measures of athletes’ perceived seasonal success (perceived personal success and perceived level of enjoyment) were correlated above a .70 level. Because the primary focus in this project was to assess the influence of performance success on athletes’ levels of burnout, the variable corresponding to athletes’ level of enjoyment was dropped from the hierarchical regression analyses. For the set of nine variables utilized in this study to assess coaching behavior, the score from the Sport Climate Questionnaire (measuring an autonomy-supportive team climate) was correlated at +.70 with two of the three CBAS factor scores and with three of the LSS subscale scores. In addition, two of the LSS subscale scores (Social Support and Positive Feedback) were correlated at +.70 with the CBAS factor scores. To reduce this multicollinearity, coaching behavior for the following three hierarchical analyses was assessed with only six of the nine subscale scores (LSS Training and Instruction, LSS Autocratic Behavior, LSS Democratic Behavior, and the three CBAS factor scores). The results of the three hierarchical regression analyses are presented in the following paragraphs.

For the first hierarchical regression analysis, the dependent variable was the change score for the Reduced Accomplishment (RA) subscale from the ABQ. The predictor variables included the two measures of athletes’ perceptions of seasonal success
along with the six selected measures of perceived coaching behavior. To determine whether perceived coaching behavior contributed to changes in athletes’ RA levels above and beyond the perceived season success variables, a hierarchical procedure was used. Specifically, at Step 1, the two measures of seasonal success were entered. At Step 2, the six coaching behavior scores were entered. The results of this hierarchical analysis revealed that the two measures of athletes’ perceived seasonal success entered at Step 1 significantly predicted changes in athletes’ RA scores across the season, F (2, 39) = 5.99, p < .01, adjusted R-squared = .20. This model explained 20% of the variability in athletes’ RA change. At Step 2, the six coaching behavior variables were entered, and the results indicated that there was a significant improvement in the variability explained, R-squared change = .19, F-change (6, 33) = 3.78, p < .05. Thus, the set of coaching behaviors explained a significant amount of the variability in the changes observed in athletes' levels of RA over the season beyond that which could be explained by athletes' perceptions of seasonal success. The beta weights for the combined model (Step 2) are presented in Table 6. These results indicate that there were three significant predictors of change in athletes’ sense of reduced accomplishment over the season. The three predictors were: perceived personal success, coaches' use of punishment-oriented feedback, and coaches' use of a democratic leadership style. The sign of the beta weights shows that athletes who perceived low levels of personal success over the season and who perceived their coaches to be low in democratic leadership style and high in frequency of punishment-oriented feedback experienced higher increases in reduced accomplishment over the season.

For the second hierarchical regression analysis, the dependent variable was the change score for the second subscale from the ABQ, the Physical and Emotional Exhaustion subscale. Again, the predictor variables were the same as in the previous analysis. The results of this hierarchical regression analysis showed that at Step 1 the two measures of athletes' perceived seasonal success did not predict changes in athletes' levels of physical and emotional exhaustion (p < .21). At Step 2, the addition of the set of coaching behaviors also did not contribute significantly to the regression equation (p < .35). Thus, these results suggest that changes in athletes' levels of physical and emotional exhaustion were not predicted by athletes' perceptions of seasonal success or by perceived coaching leadership styles and behaviors.

For the third hierarchical regression analysis, the dependent variable was the change score for the third subscale from the ABQ, the Sport Devaluation score. Once again, the same predictor variables and order of entry were used. The results of this analysis showed that at Step 1, the two perceived seasonal performance variables only approached significance in terms of their prediction of athletes' change in sport devaluation, F (2, 39) = 3.09, p < .06. However, the set of coaching variables entered at Step 2 resulted in a significant contribution to the regression equation, R-squared change = .21, F-change (6, 33) = 3.56, p < .03. The regression weights for the final model (Step 2) (see Table 7) show that there were four significant predictors, and the signs indicate that increases in players' feelings of sport devaluation over the season were predicted by low levels of perceived team success, low levels of training and instructional behavior by the coaches, high frequencies of no feedback (ignoring mistakes and non-reinforcement) from coaches, along with the coaches' use of an autocratic leadership style.
In summary, then, the results of these hierarchical analyses show that changes in athletes' levels of burnout over the season could be predicted by both their perceptions of the success of the season and by their perceptions of their coaches' behavior. However, the specific predictors varied across the three subscales. Increases in athletes' sense of reduced accomplishment was predicted by low levels of perceived personal performance success and by a coaching style characterized by high frequencies of punishment-oriented feedback, and low use of a democratic leadership style. Increases in athletes' feelings of sport devaluation were predicted by low levels of perceived team success along with a coaching style that reflected high levels of non-feedback (for both athletes' performance successes and errors), low levels of training and instructional behavior, and high use of an autocratic leadership style. Finally, changes in athletes' levels of emotional and physical exhaustion were not linked to any of the predictor variables.

Main Analyses: Links Between Changes in Burnout and Motivational Orientation

To determine whether changes in athletes' levels of burnout across a competitive season could be correlated with, or predicted by, changes in their motivational orientation, a multivariate multiple regression analysis with follow-up canonical correlational analyses was conducted. The dependent variables for this analysis were the change (late season - early season) scores for the three ABQ (burnout) subscale scores, and the predictor variables were the change scores for the motivational orientation subscales. Based on recommendations provided by Lonsdale (Lonsdale, Hodge, & Rose, 2008), the single IM-General subscale score was used in place of the three individual IM-specific subscale scores (IM Accomplishment, IM To Know, IM for Stimulation). As Lonsdale et al. (2008) note, the three IM-specific subscale scores are typically highly correlated and all load highly on the IM-General subscale score. Thus, due to the small sample size in the current study, the single IM-General subscale score was used along with the five other subscale scores representing the extrinsic and amotivation forms of motivation.

The results of the multivariate multiple regression analysis indicated a significant main effect, Wilks' Lambda = .38, F (18, 96) = 2.22, p < .01. This significant main effect revealed that the set of change scores from the motivational orientation scale did, in fact, explain a significant amount of the variability in athletes' change scores from the ABQ (burnout). The follow-up canonical correlation results revealed one significant canonical function (R = .70, R-squared = .48, p < .01). The canonical loadings are presented in Table 8. Using a minimum loading of .35 to interpret these results reveals that all three of the dependent variables are significantly related to four of the predictor variables. The sign of the loadings indicates that athletes' scores on all three of the burnout subscales increased over the season when their intrinsic motivation scores as well as their extrinsic integrated regulation and extrinsic identified scores decreased. Furthermore, increases in athletes' levels of amotivation over the season were also predictive of increases in all three forms of burnout. The size of the loadings indicates that the burnout subscale score that was most affected by the changes in motivational orientation was sport devaluation. Similarly, the motivational orientation score that was the most highly predictive of increases in burnout was the intrinsic motivation general score. Thus, athletes whose
levels of intrinsic motivation declined over the season were more likely to experience an increase in feelings of sport devaluation. The redundancy index for this model indicated that 40% of the variability in the changes experienced by athletes over the season in their burnout levels could be explained by corresponding changes in their motivational orientation profiles.
CHAPTER FIVE

DISCUSSION

The primary purpose of this study was to determine if changes in athletes’ experiences of burnout across a competitive season were related to or predicted by their perceptions of their coaches’ behaviors. A secondary purpose was to determine if changes in athletes’ levels of burnout experienced over the course of a season were correlated with changes in their motivational orientation profiles. The results of the statistical analyses conducted to examine these two purposes are summarized and discussed in the following sections.

Preliminary Analyses

Before starting the main analyses, preliminary analyses were conducted to determine if athletes' level of burnout and motivational orientation changed significantly from early to late season. Though the results of the repeated measures MANOVAs showed that, as a group, the student-athletes did not experience significant changes in their burnout levels or their motivational orientation, there did appear initially to be quite a bit of inter-individual variance. That is, the change scores (late season score minus early season score) for the subscales of both the ABQ (Raedeke 1997; Raedeke & Smith, 2001) and the BRSQ (Lonsdale et al., 2008) revealed both large standard deviations and large ranges within the participant group. These descriptive results suggest that while some athletes did not show significant changes in motivational orientation or burnout levels, others did. This level of inter-individual variability in athletes' experiences of changes in burnout over a competitive season has been noted by previous researchers as well (see review by Eklund & Cresswell, 2007). Thus, it appears as if there are factors either within individual athletes or within the sport environment itself that may explain why athletes vary from each other in their experiences of burnout. One such factor that was examined in this study was coaching behavior.

Link Between Coaching Behaviors and Athletes’ Burnout Levels

In this study, it was hypothesized that changes in the participant female athletes’ burnout would be significantly explained and/or predicted by the athletes’ perceptions of their coaches’ behaviors. Specifically, it was hypothesized that athletes who perceived their coaches as controlling (possessing autocratic style) & who provided high frequencies of punishment-oriented as well as non-informational feedback would show increases in burnout levels from early to late season, while athletes who believed their coaches’ exhibited democratic leadership styles and who provided large amounts of positive, encouraging and informational feedback as well as social support would experience less or even no increase in burnout levels over the competitive season. The results of the main study analyses did provide some support for these hypotheses. Specifically, two of the three hierarchical regression analyses revealed that coaching
styles and behaviors did, in fact, significantly impact levels of burnout experienced by the athletes over the course of the season. Coaching styles characterized by high frequencies of punishment-oriented feedback and low use of a democratic leadership style were found to lead to athletes feeling an increased sense of reduced accomplishment as the season progressed. Athletes who experienced increases in feelings of sport devaluation over the season reported their coaches to exhibit low levels of training and instruction paired with high levels of non-feedback (for athletes’ performance-related successes and failures) along with an autocratic leadership style. Interestingly, the results of the hierarchical regression analyses used in this study showed that changes in athletes' levels of emotional and physical exhaustion were not linked to perceived coaching behaviors.

It is also important to note that the significant impact of coaching behaviors on changes in athletes' levels of burnout (feelings of reduced accomplishment and devaluation of sport) over a competitive season was demonstrated even after measures of performance success were parcelled out of the regression equation. That is, the regression analyses conducted to determine if the perceived coaching behaviors could predict changes in athletes' levels of burnout from early to late season were conducted using a hierarchical procedure in which the two measures of seasonal performance success (perceived personal success and perceived team success) were entered at the first level, and the perceived coaching behaviors were entered at the second level. The results of the two hierarchical regression analyses for the reduced accomplishment (RA) and Sport Devaluation (SD) subscales of the ABQ showed that the measures of seasonal success did explain a significant amount of the variation in athletes' change scores for the RA subscale and approached significance for contribution to the SD subscale. Thus, some of the variability between athletes in the degree to which burnout levels increased over the competitive season can be attributed to the level of performance success they achieved as individuals and as a team. However, for both the RA and SD subscales, the set of coaching behaviors were found to explain a significant amount of the variability in athletes' burnout change scores above and beyond that explained by the seasonal success scores. Thus, the results from this study point to the importance of coaching behaviors for collegiate female athletes over and above that explained by performance outcomes.

As noted earlier in this paper, coaching behaviors have been found to significantly impact athletes’ psychosocial responses and experiences in sport settings (see recent reviews by Chelladurai, 2007 and Horn, 2008). However, only a limited amount of research has been conducted to examine links between athlete burnout and coaching behaviors. Thus, the current research project adds to the few studies that previously have been conducted on this topic. Specifically, the findings from this study are consistent with those reported by Vealey et al. (1998) who first showed that coaching behaviors do, in fact, impact athlete burnout. Specifically, the Vealey et al study, as well as the current one, suggest that autocratic coaching styles significantly impact burnout levels experienced by the athletes. The findings from the current research project are also in congruence with Price and Weiss (2000) who found that, with regards to high school coaches, those who exhibited a democratic leadership style, higher amounts of training and instruction, social support, and positive feedback tended to have athletes who were lower in both anxiety and burnout levels.
Previous research conducted by Reinboth and Duda (2004) may explain why the perceived coaching behaviors tested in the current study did not explain or predict changes in athletes’ experiences of physical and emotional exhaustion. That is, Reinboth and Duda found that it was athletes’ perceptions of their coach-created motivational climate that led to high levels of burnout (measured as physical and emotional exhaustion) rather than the six coaching behaviors that were assessed in this study. Therefore, it may be important in future research projects to also include motivational climate as a predictive factor of burnout.

Going beyond simple agreement, the current study brings new ideas to light concerning the relationship between coaching behaviors and athlete burnout. First, it is important to note that at least some of the athletes participating in this project did experience increased levels of burnout as the season progressed. And, it was found that these increases were due, at least in part, to particular types of coaching behaviors (i.e. training and instruction, autocratic/democratic leadership, no feedback, punishment-related feedback). This study also looked at coaching feedback patterns as a possible agent related to elevated experiences of burnout and found some significant links. It must also be mentioned that this research project brought to light the notion that athletes’ ratings of their personal and team success over the season may also be important as future research attempts to better understand varying levels of athlete burnout.

**Link Between Changes in Motivational Orientation and Changes in Burnout Levels**

The second hypothesis of this study postulated that changes in motivational orientation and burnout would be significantly correlated (i.e., as athletes' motivational orientation changed from intrinsic or self-determined to extrinsic or non-self-determined, their burnout levels would correspondingly increase). To test this hypothesized link, a multivariate multiple regression analysis was conducted. The results of this analysis did show a significant predictive relationship. That is, changes across the season in athletes' motivational orientation scores explained a significant amount of the variation in the changes that were observed in athletes' levels of burnout. The follow-up canonical correlational analysis indicated that athletes' scores on all three of the burnout subscales (reduced accomplishment, physical/emotional exhaustion, sport devaluation) increased over the season when their self-determined motivational orientation scores decreased and their amotivation scores increased. In short, as athletes' motivational profile changed from self-determined to non-self-determined, their burnout levels increased.

These results provide a significant addition to the burnout and motivation literature in that this provides strong evidence that the two sets of psychological variables are strongly related in a dynamic way. That is, the current study results show that change (as measured longitudinally) in one set of variables was predictive of change (as measured longitudinally) in the other set of variables. Furthermore, the redundancy index of 40% indicates that a relatively large amount of the variability in the changes that athletes experienced over the season in their burnout levels was explained by corresponding changes in their motivational profiles.

It is also important to note that sport devaluation was the form of burnout that was affected the most by the changes in the motivational scores. Why is this important?
Because, if previous research (Cresswell & Eklund, 2007) is correct, and there is a sequential relationship between the three burnout symptoms, then it may well be worth looking further into motivational orientation to develop effective burnout intervention techniques.

Clearly, the results found in this study provide support for the applicability of Self-Determination Theory (SDT; Deci & Ryan, 1985, 2000; Sarrazin et al., 2007; Vallerand, 2001) to the study of burnout in sport contexts. SDT theory suggests that if athletes do not feel autonomous, competent, or related to others in their sporting environments, they will exhibit more of an extrinsic motivational orientation. Furthermore, when these basic psychological needs go unmet for extended periods of time, SDT theory (Sarrazin et al., 2007) suggests that the athletes may become non-self-determined, and high levels of burnout may ensue, eventually leading to sport dropout. What the current study shows is that this connection between motivational orientation and burnout levels does exist. Specifically, as athletes in this study became less intrinsically motivated and more externally regulated (or amotivated), they experienced increased levels of burnout. A recent study by Reinboth and Duda (2006) showed that coaches’ creation of a task-oriented team climate was predictive of increases in athletes’ perceptions of autonomy, competence, and relatedness over the course of a competitive season. So, when combined with the results of the current research project, all of this information may mean that if coaches are able to develop a task-oriented climate, they may be able to increase their athletes’ levels of intrinsic motivation thus decreasing amounts of burnout and potentially reducing the risk of dropout.

Study Limitations

Though the current study produced new knowledge that provides a significant contribution to the existing literature on burnout, motivational orientation, and coaching behaviors, this study also exhibits some limitations. First, there were several limitations with regard to the study sample. To begin with, the overall size of the sample was small. This occurred in part because many of the athletes who completed the Wave 1 surveys did not complete the Wave 2 surveys. Although preliminary statistical comparisons of the athletes who completed the entire study (n = 44) and those who just completed Wave 1 (n = 58) indicated that the two groups were statistically similar in demographic characteristics as well as in early season burnout and motivational orientation profiles, the loss of more than half of the Wave 1 participants did significantly reduce the sample that was available for the full study analyses. It is also important to note that the final study sample included only female student-athletes from both NCAA Division I and III schools. Due to the small overall sample size, it was not possible to separate the athletes by NCAA collegiate division. Thus, this may have served as a confounding factor. In short, the results of the current study may not necessarily apply to the broader population of NCAA athletes.

Secondly, even though the current study used a longitudinal data collection design, it was not a causal study. Therefore, although the study results provide strong evidence that coaching behavior is linked to changes in athletes’ levels of burnout across
a competitive season, no causality in this link can be inferred. Similarly, in regard to the second study purpose that showed a strong predictive relationship between changes in motivational orientation and changes in burnout, no directional effects can be assumed. That is, although the changes in athletes' scores on these two sets of variables are certainly strongly correlated or related, it is not possible from the results of this study to infer that the changes in athletes' motivational orientation caused the changes in their burnout levels.

It is also important to note that the athletes in this study varied in terms of sport type (individual and team), academic year, and scholarship status. Any of these factors could have served as confounding variables in examining the relationships between coaching behavior, motivational orientation, and burnout.

Finally, with regard to coaching behaviors, the current study did not include all of the coaching behaviors (e.g., motivational climate) that have been suggested by previous researchers to have an impact on athlete burnout. This limitation prevents the current researchers from being able to support other claims that have been made about the link between coaching styles and feedback patterns and athlete burnout.

Future Research

Interest in the area of burnout with specific interest in sport contexts has increased over the last decade. However, there is still much mystery remaining with regards to athletes’ experiences, correlates/cause, possible long-term outcomes, and potential risk factors or vulnerability. More than anything, the literature simply needs the addition of more studies that assess and measure the existence and prevalence of burnout across all age groups.

One specific suggestion for future research is to continue conducting more longitudinal research in various areas concerning burnout. For instance, more information is needed regarding the long-term of effects of the three burnout symptoms relative to performance and sport continuation/dropout. Longitudinal research would also be helpful in learning more about the possibility of an interaction between the symptoms or a sequential pattern that may exist.

In relation to the link between coaching behaviors and burnout, more research is needed to investigate this connection further. Which coaching behaviors have the strongest influence on the burnout symptoms? Can these be targeted through intervention strategies to decrease the potential for athletes to experience burnout? If a sequential relationship does exist between the burnout dimensions, can certain coaching behaviors help alleviate the experienced levels of burnout or even help the athlete move back to the previous stage of burnout? More evidence is also needed to support or reject the notion that coaches committed to building task-oriented climates may be able to become part of the solution in the process of reducing the levels of burnout in collegiate athletes.
Practical Implications

The results of this study are applicable to both coaches of female sports and female athletes themselves who remain active in the college sport setting. If coaches would like to reduce the number of players experiencing or even showing signs of burnout (reduced accomplishment, physical/emotional exhaustion, sport devaluation), one possible change they could make would be to introduce a more democratic coaching style that helps the athletes feel more control over important decisions and team structure. They may also try incorporating more positive feedback that includes specific, technical instruction while reducing the amount of punishment they utilize throughout the season in response to athletes’ performance results. It might also help if they created, with their athletes, a more task-focused climate. This change would mean focusing more on effort and participation than on winning and competition.

From an athlete’s perspective, she, too, could learn and apply the results from the current study to improve her experiences in intercollegiate athletics. For example, she could start setting more task-oriented goals for both practice and game situations. This process might help her become more intrinsically motivated (or remain that way), which, in turn, would decrease her experiences of burnout or reduce her overall vulnerability to those experiences. If she notices a teammate is becoming too driven by external forces, she may be able to help them return to a more internal focus as well.

Practitioners and other educational specialists could use the results and information provided via the current research to create more coaching education programs centered around teaching young (and “old”) coaches how to employ behaviors that are more productive and beneficial for their athletes both on and off the court. With regards to burnout, they may be able to highlight some of the coaching behaviors previously mentioned and identify scenarios in which coaches could alter current language, actions, behaviors to reduce athletes’ potential to experience burnout symptoms or begin relying on external motivational orientation profiles.
References


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<th><strong>Burnout:</strong></th>
<th>Early Season</th>
<th>Late Season</th>
<th>Change (Late - Early)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced Accompishment</td>
<td>M = 2.20, SD = .72</td>
<td>M = 2.33, SD = .70</td>
<td>M = .13, SD = .70</td>
</tr>
<tr>
<td>Physical and Emotional Exhaustion</td>
<td>M = 2.67, SD = .61</td>
<td>M = 2.61, SD = .68</td>
<td>M = -.06, SD = .58</td>
</tr>
<tr>
<td>Sport Devaluation</td>
<td>M = 1.86, SD = .71</td>
<td>M = 2.03, SD = .80</td>
<td>M = .17, SD = .68</td>
</tr>
</tbody>
</table>
Table 2  Descriptive statistics for BRSQ (early vs. late)

<table>
<thead>
<tr>
<th></th>
<th>Early Season</th>
<th>Late Season</th>
<th>Change (Late-Early)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean &amp; Standard Deviation</td>
<td>Mean &amp; Standard Deviation</td>
<td>Mean &amp; Standard Deviation</td>
</tr>
<tr>
<td><strong>Intrinsic Motivation:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General</td>
<td>M = 6.21</td>
<td>M = 6.12</td>
<td>M =  -.08</td>
</tr>
<tr>
<td></td>
<td>SD = .92</td>
<td>SD = .91</td>
<td>SD =  .83</td>
</tr>
<tr>
<td>To Accomplish</td>
<td>M = 6.45</td>
<td>M = 6.06</td>
<td>M = -.40</td>
</tr>
<tr>
<td></td>
<td>SD = .73</td>
<td>SD = .87</td>
<td>SD =  .81</td>
</tr>
<tr>
<td>Stimulation</td>
<td>M = 6.27</td>
<td>M = 5.94</td>
<td>M = -.34</td>
</tr>
<tr>
<td></td>
<td>SD = .75</td>
<td>SD = 1.00</td>
<td>SD =  .95</td>
</tr>
<tr>
<td>To Know</td>
<td>M = 5.52</td>
<td>M = 5.26</td>
<td>M = -.23</td>
</tr>
<tr>
<td></td>
<td>SD = 1.23</td>
<td>SD = 1.21</td>
<td>SD =  1.27</td>
</tr>
<tr>
<td><strong>Extrinsic Motivation:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrated Regulation</td>
<td>M = 5.83</td>
<td>M = 5.52</td>
<td>M =  -.28</td>
</tr>
<tr>
<td></td>
<td>SD = 1.00</td>
<td>SD = 1.15</td>
<td>SD =  1.15</td>
</tr>
<tr>
<td>Introjected Regulation</td>
<td>M = 4.02</td>
<td>M = 3.60</td>
<td>M =  -.35</td>
</tr>
<tr>
<td></td>
<td>SD = 1.67</td>
<td>SD = 1.72</td>
<td>SD =  1.93</td>
</tr>
<tr>
<td>Identified Regulation</td>
<td>M = 5.89</td>
<td>M = 5.68</td>
<td>M =  -.18</td>
</tr>
<tr>
<td></td>
<td>SD = .87</td>
<td>SD = 1.01</td>
<td>SD =  .89</td>
</tr>
<tr>
<td>External Regulation</td>
<td>M = 2.74</td>
<td>M = 2.98</td>
<td>M =  .26</td>
</tr>
<tr>
<td></td>
<td>SD = 1.38</td>
<td>SD = 1.61</td>
<td>SD =  1.85</td>
</tr>
<tr>
<td>Amotivation</td>
<td>M = 2.18</td>
<td>M = 2.37</td>
<td>M =  .17</td>
</tr>
<tr>
<td></td>
<td>SD = 1.22</td>
<td>SD = 1.31</td>
<td>SD =  1.02</td>
</tr>
</tbody>
</table>
Table 3  Descriptive statistics for coaching behavior subscales (Autonomy-Supportive, LSS, and CBAS/CFQ)

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Mean and Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomy-Supportive Coaching Style</td>
<td>M = 4.21, SD = 1.56</td>
</tr>
<tr>
<td>Leadership Scale for Sport:</td>
<td></td>
</tr>
<tr>
<td>Training and Instruction</td>
<td>M = 3.37, SD = .78</td>
</tr>
<tr>
<td>Autocratic Style</td>
<td>M = 2.88, SD = .72</td>
</tr>
<tr>
<td>Democratic Style</td>
<td>M = 2.72, SD = .72</td>
</tr>
<tr>
<td>Social Support</td>
<td>M = 2.53, SD = .73</td>
</tr>
<tr>
<td>Positive Feedback</td>
<td>M = 3.47, SD = 1.11</td>
</tr>
<tr>
<td>CBAS (CFQ) – Factor 1:</td>
<td></td>
</tr>
<tr>
<td>Reinforcement + Technical Instruction,</td>
<td>M = 2.98, SD = .99</td>
</tr>
<tr>
<td>Reinforcement, Mistake-Contingent</td>
<td></td>
</tr>
<tr>
<td>Encouragement, Corrective Instruction</td>
<td></td>
</tr>
<tr>
<td>CBAS (CFQ) – Factor 2:</td>
<td>M = 1.89, SD = .79</td>
</tr>
<tr>
<td>Punishment, Corrective Instruction +</td>
<td></td>
</tr>
<tr>
<td>Punishment</td>
<td></td>
</tr>
<tr>
<td>CBAS (CFQ) – Factor 3:</td>
<td>M = 2.55, SD = 1.12</td>
</tr>
<tr>
<td>Non-Reinforcement &amp; Ignoring Mistakes</td>
<td></td>
</tr>
</tbody>
</table>
Table 4  Descriptive statistics for end-of-season performance scores (win/loss, place, etc.) and the players’ self-evaluations

<table>
<thead>
<tr>
<th>Description</th>
<th>Mean (M)</th>
<th>Standard Deviation (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>End-of-Season Performance Scores:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>win-loss record (current season)</td>
<td>60.58</td>
<td>5.54</td>
</tr>
<tr>
<td>win-loss record (previous season)</td>
<td>60.00</td>
<td>0.000</td>
</tr>
<tr>
<td>finish in conference/league (current season)</td>
<td>4.58</td>
<td>0.50</td>
</tr>
<tr>
<td>finish in conference/league (previous season)</td>
<td>6.42</td>
<td>0.504</td>
</tr>
<tr>
<td>Self-Evaluations:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>perceived personal success</td>
<td>6.68</td>
<td>2.33</td>
</tr>
<tr>
<td>perceived team success</td>
<td>6.45</td>
<td>1.86</td>
</tr>
<tr>
<td>enjoyment level</td>
<td>8.14</td>
<td>1.62</td>
</tr>
</tbody>
</table>
Table 5  Cronbach’s alpha results

<table>
<thead>
<tr>
<th></th>
<th>Early Season</th>
<th>Late Season</th>
</tr>
</thead>
<tbody>
<tr>
<td>IM: General</td>
<td>.93</td>
<td>.90</td>
</tr>
<tr>
<td>IM: Accomplish</td>
<td>.89</td>
<td>.79</td>
</tr>
<tr>
<td>IM: Stimulation</td>
<td>.84</td>
<td>.87</td>
</tr>
<tr>
<td>IM: To Know</td>
<td>.93</td>
<td>.93</td>
</tr>
<tr>
<td>EM: Integrated Regulation</td>
<td>.86</td>
<td>.89</td>
</tr>
<tr>
<td>EM: Introjected Regulation</td>
<td>.87</td>
<td>.93</td>
</tr>
<tr>
<td>EM: Identified Regulation</td>
<td>.76</td>
<td>.83</td>
</tr>
<tr>
<td>EM: External Regulation</td>
<td>.88</td>
<td>.92</td>
</tr>
<tr>
<td>Amotivation</td>
<td>.90</td>
<td>.90</td>
</tr>
<tr>
<td>Burnout: Reduced Accomplishment</td>
<td>.83</td>
<td>.85</td>
</tr>
<tr>
<td>Burnout: Exhaustion</td>
<td>.85</td>
<td>.89</td>
</tr>
<tr>
<td>Burnout: Devaluation</td>
<td>.85</td>
<td>.89</td>
</tr>
<tr>
<td>SCQ: Autonomy-Supportive Coaching Style</td>
<td></td>
<td>.98</td>
</tr>
<tr>
<td>LSS: Training and Instruction</td>
<td></td>
<td>.94</td>
</tr>
<tr>
<td>LSS: Autocratic Style</td>
<td>.84</td>
<td></td>
</tr>
<tr>
<td>LSS: Democratic Style</td>
<td>.90</td>
<td></td>
</tr>
<tr>
<td>LSS: Social Support</td>
<td>.83</td>
<td></td>
</tr>
<tr>
<td>LSS: Positive Feedback</td>
<td>.97</td>
<td></td>
</tr>
<tr>
<td>CBAS: Factor 1 (Positive and Information FB)</td>
<td>.87</td>
<td></td>
</tr>
<tr>
<td>CBAS: Factor 2 (Punishment-oriented FB)</td>
<td>.73</td>
<td></td>
</tr>
<tr>
<td>CBAS: Factor 3 (Non-reinforcement/Ignoring mistakes)</td>
<td>.85</td>
<td></td>
</tr>
</tbody>
</table>
Table 6  Regression Results for Prediction of Change in Reduced Accomplishment

<table>
<thead>
<tr>
<th></th>
<th>Beta Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Personal Success Over Season</td>
<td>-.46**</td>
</tr>
<tr>
<td>Perceived Team Success Over Season</td>
<td>.07</td>
</tr>
<tr>
<td>LSS: Training and Instruction</td>
<td>-.33</td>
</tr>
<tr>
<td>LSS: Autocratic Style</td>
<td>.02</td>
</tr>
<tr>
<td>LSS: Democratic Style</td>
<td>-.43**</td>
</tr>
<tr>
<td>CBAS: Pos/Info FB</td>
<td>-.30</td>
</tr>
<tr>
<td>CBAS: Pun-Or FB</td>
<td>.36*</td>
</tr>
<tr>
<td>CBAS: Ignoring Mistake/NonRF</td>
<td>.21</td>
</tr>
<tr>
<td>Complete Regression Model</td>
<td></td>
</tr>
<tr>
<td></td>
<td>R-squared = .36</td>
</tr>
<tr>
<td></td>
<td>F (8, 33) = 2.33, p &lt; .04</td>
</tr>
</tbody>
</table>

*p < .05

**p < .01
Table 7  Regression Results for Prediction of Change in Sport Devaluation Subscale

<table>
<thead>
<tr>
<th></th>
<th>Beta Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Personal Success Over Season</td>
<td>.03</td>
</tr>
<tr>
<td>Perceived Team Success Over Season</td>
<td>-.42*</td>
</tr>
<tr>
<td>LSS: Training and Instruction</td>
<td>-.64*</td>
</tr>
<tr>
<td>LSS: Autocratic Style</td>
<td>.39*</td>
</tr>
<tr>
<td>LSS: Democratic Style</td>
<td>-.02</td>
</tr>
<tr>
<td>CBAS: Pos/Info FB</td>
<td>.03</td>
</tr>
<tr>
<td>CBAS: Pun-Or FB</td>
<td>.01</td>
</tr>
<tr>
<td>CBAS: Ignoring Mistake/NonRF</td>
<td>38*</td>
</tr>
</tbody>
</table>
| Complete Model                       | R-squared = .33  
                              | F (8, 33) = 2.71, p < .05 |

*p < .05
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.81</td>
<td>-.55</td>
<td>.20</td>
<td>-.45</td>
<td>-.01</td>
<td>.50</td>
<td></td>
</tr>
</tbody>
</table>
Hello, Coach Smith (or Dear Coach Smith for email contact):

My name is Mallory Mann. I am a Sport Studies graduate student at Miami University and am part of a research team sponsored by Dr. Thelma Horn, an associate professor at Miami University. Our research team is currently working on a series of research studies that are designed to identify or determine the characteristics and behaviors of effective coaches. During the 2008-2010 academic year, we are hoping to administer a set of surveys to 300 or more college athletes at the beginning and then again at the end of their competitive season. These surveys will assess athletes' levels of intrinsic motivation, burnout, perceived team cohesion, and perceived quality of life. In addition, there will be questions to assess athletes' perceptions of their coaches' leadership styles and feedback behaviors. Our purpose in this particular project is to document any changes that may occur across a competitive season in athletes' psychosocial well-being and to identify the coaching styles and feedback patterns that may be linked to increases and/or decreases in their athletes' well-being.

I am contacting you to see if you would be able and willing to let us talk with the athletes on your team to ask them if they will fill out our survey packets at two different times (during the early part of the season and then again in the last couple weeks of the season). It would only take them about 20 to 30 minutes to complete each set of surveys, and we won't be asking them to give us their names, their college's/university's name, or their coaches' name. We will be asking athletes to choose and use a code name in order to preserve the confidentiality of our data collection.

What we are asking you to do is help us schedule one 30-minute session with your team sometime during the first couple of weeks of your season and then another 30-minute session at the end of your season. We can do these data collection times before a practice session, after a practice session, or at any other time that would work for you and your athletes.

We do have to tell you that you and/or your assistant coaches cannot be present during our meetings with the athletes as we don't want the athletes to think that we (or you) are forcing them to fill out our survey. We want them to participate on a voluntary basis.

We also cannot provide you with the results of your athletes' responses to the survey. But, we can and will provide you with a summary of the results of our overall project after we have completed data collection. Specifically, we will send you a written report that summarizes what we found in this study. This report will tell you what we found for the athletes as a whole group - not for your team specifically. This information may be of interest to you and your assistant coaches because we are focusing in this project on identifying the characteristics and behaviors of effective coaches.

Do you have any questions?
Can we schedule a time for a meeting with your athletes?
APPENDIX B

Script to Recruit Athletes for Participation

Hello. My name is Mallory Mann. I am a graduate student in the KNH Department at Miami University in Oxford, Ohio. I am here today to ask each of you to participate in a research study that I, and Dr. Horn (a professor in the KNH Department) are conducting to find out what you think of yourself as an athlete, why you are motivated to participate in your sport, what you think of your team's cohesiveness, how satisfied you are with your life, and how you perceive your coach's leadership style and feedback patterns.

To be a participant in this study, you will need to fill out this survey that consists of a number of questionnaires asking you questions about yourself and your team. Filling out this set of questionnaires should take you about 20 to 25 minutes. We would also like for each of you to complete another set of questionnaires at the end of your regular season. Again, that session would take about 20 to 25 minutes.

You should know that no one besides me and my academic advisor, Dr. Horn, will ever see your answers. We are not even asking you to tell us your name, your school's name, your uniform number, or the position you play. We will ask you to put a code name on this survey and on the one that you will complete at the end of the season. We need to do this so that we can match up your two sets of answers. Each of you will pick your own code name, and no one (other than yourself) will know what code name you have picked. Thus, no one (including ourselves) will be able to identify what answers you, as an individual athlete, provided to our questions. We do hope to write a paper or papers describing the results of this study. These papers would be published in research journals, but your name, your coach's name, and your school's name would never be identified because we are not even collecting this information.

It is also important for me to tell you that you do not have to participate in this study. That is, if you do not want to fill out the set of questionnaires, you do not have to do so. Also, if you start filling out the questionnaires and don't want to finish, you can quit at any time.

We would really appreciate your help with this study as we are trying to find out more about the factors that affect the motivation, happiness, enjoyment, and confidence of college athletes. We are asking you, as athletes, for this information because we believe that you are in the best position to tell us what causes you to be motivated for sport participation.
APPENDIX C

Demographic Questionnaire (used in Wave 1)

COLLEGIATE ATHLETES' SURVEY

YOUR CODE NAME (Childhood Pet Name/Elementary School Name) ________________

AGE ______

GENDER
        _____ Male
        _____ Female

Ethnicity
        _____ African-American
        _____ Caucasian
        _____ Asian-American
        _____ Hispanic-American
        _____ Native American
        _____ Other _______________________

YEAR IN SCHOOL
        _____ First Year
        _____ Sophomore
        _____ Junior
        _____ Senior
        _____ Fifth Year

SPORT _______________________

YOUR COACH'S GENDER
        _____ Male
        _____ Female

COLLEGE DIVISION
        _____ Division I
        _____ Division II
        _____ Division III
        _____ NAIA
        _____ Other (please specify)

ATHLETIC SCHOLARSHIP STATUS (check closest approximation)
        _____ Full Athletic Scholarship
        _____ Partial: More than Half
        _____ Partial: Half
        _____ Partial: Less than Half
        _____ No Athletic Scholarship
APPENDIX D

Performance Evaluation Questionnaire (used in Wave 2)

COLLEGIATE ATHLETES' SURVEY

YOUR CODE NAME (Childhood Pet Name/Elementary School Name) ______________________

INJURY REPORT FOR THIS PAST SEASON

Did you experience an injury this past season?

_____ Yes
_____ No

If you did experience an injury this past season, briefly describe below the injury

How many days of practice did you miss due to this injury?

How many matches/games/meets did you miss due to this injury?

YOUR EVALUATION OF THIS PAST SEASON

1. As an individual, how successful were you this season in reaching your personal goals?

   1  2  3  4  5  6  7  8  9  10
   Very Unsuccessful  Moderately Successful  Very Successful

2. How successful do you think your team was this season in reaching its goals?

   1  2  3  4  5  6  7  8  9  10
   Very Unsuccessful  Moderately Successful  Very Successful

3. Was there a turning point to your season that helped aid a change for better or worse?
   If yes, briefly describe below what this turning point was.
APPENDIX E

Athlete Burnout Questionnaire (ABQ) (used in Waves 1 and 2)

SPORT COMMITMENT QUESTIONNAIRE

DIRECTIONS: Please answer the following questions as accurately and honestly as you can based on how often you experience each thought or feeling in your sport.

<table>
<thead>
<tr>
<th></th>
<th>ALMOST NEVER</th>
<th>RARELY</th>
<th>SOMETIMES</th>
<th>FREQUENTLY</th>
<th>ALMOST ALWAYS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I’m accomplishing many worthwhile things in my sport.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. I feel so tired from my training that I have trouble finding energy to do other things.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. The effort I spend in my sport would be better spent doing other things.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. I feel overly tired from my sport participation.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. I am not achieving much in my sport.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. I don’t care as much about my sport performance as I used to.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. I am not performing up to my ability in my sport.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. I feel “wiped out” from my sport.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. I’m not into my sport like I used to be.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. I feel physically worn out from my sport.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11. I feel less concerned about being successful in my sport than I used to.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>ALMOST NEVER</td>
<td>RARELY</td>
<td>SOMETIMES</td>
<td>FREQUENTLY</td>
<td>ALMOST ALWAYS</td>
</tr>
<tr>
<td>---</td>
<td>--------------</td>
<td>--------</td>
<td>-----------</td>
<td>------------</td>
<td>--------------</td>
</tr>
<tr>
<td>12. I am exhausted by the mental and physical demands of my sport.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13. It seems that no matter what I do, I don’t perform as well as I should.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14. I feel successful at my sport.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15. I have negative feelings toward my sport.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
APPENDIX F

Behavioral Self-Regulation Questionnaire (BSRQ) (used in Waves 1 and 2)

Why Do You Participate in Your Sport?

Below are some reasons why people participate in sport. Using the scale provided, please indicate how true each of the following statements is for you. When deciding if this is one of the reasons why you participate, please think about all the reasons why you participate. There are no right or wrong answers, so do not spend too much time on any one question and please answer as honestly as you can. Some items may appear similar, but please respond to all the statements.

I PARTICIPATE IN MY SPORT....

<table>
<thead>
<tr>
<th></th>
<th>Not At All True</th>
<th>Somewhat True</th>
<th>Very True</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Because I enjoy it</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Because of the pleasure I experience when I feel completely absorbed in my sport</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
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</tr>
<tr>
<td>3. Because it's a part of who I am</td>
<td>1 2 3 4 5 6 7</td>
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<tr>
<td>4. Because it's an opportunity to just be who I am.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
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<tr>
<td>5. Because I would feel ashamed if I quit</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
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</tr>
<tr>
<td>6. But the reasons why are not clear to me anymore.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Because I would feel like a failure if I quit.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
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<tr>
<td>8. But I wonder what's the point.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Because what I do in sport is an expression of who I am.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Because the benefits of sport are important to me.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Because I enjoy the feeling of achievement when trying to reach long-term goals.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Because I enjoy the feeling of success when I am working towards achieving something important.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Because if I don't, other people will not be pleased with me.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Because I like it.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. I enjoy learning something new about my sport.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>Statement</td>
<td>Not At All True</td>
<td>Somewhat True</td>
</tr>
<tr>
<td>--------</td>
<td>---------------------------------------------------------------------------</td>
<td>-----------------</td>
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</tr>
<tr>
<td>16</td>
<td>Because I feel obligated to continue.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>But I question why I continue.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Because I feel pressure from other people to play.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Because of the excitement I feel when I am really involved in the activity.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Because people push me to play.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Because it's fun.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Because it teaches me self-discipline</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Because I enjoy doing something to the best of my ability</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Because I would feel guilty if I quit.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Because I find it pleasurable.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Because I like learning how to apply new techniques.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Because I value the benefits of my sport</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Because I enjoy learning new techniques.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Because I love the extreme highs that I feel during my sport</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>But I question why I am putting myself through this.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Because it is a good way to learn things which could be useful to me in my life.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Because of the positive feelings that I experience while playing my sport</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>In order to satisfy people who want me to play</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Because I get a sense of accomplishment when I strive to achieve my goals</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Because it allows me to live in a way that is true to my values</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not At All True</td>
<td>Somewhat True</td>
<td>Very True</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------</td>
<td>---------------</td>
<td>-----------</td>
</tr>
<tr>
<td>36. For the pleasure it gives me to know more about my sport</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX G

Leadership Scale for Sports (LSS) (used in Wave 2)

**LEADERSHIP SCALE FOR SPORTS**

Each of the following statements describe a specific behavior that a coach may exhibit. For each statement, there are five alternatives:

1. NEVER
2. SELDOM (about 25% of the time)
3. OCCASIONALLY (50% of the time)
4. OFTEN (about 75% of the time)
5. ALWAYS

Please evaluate your coach's behavior by circling the number that corresponds to the frequency with which your coach exhibits that type of behavior. Please answer all items.

<table>
<thead>
<tr>
<th>THE COACH OF MY TEAM.....</th>
<th>NEVER</th>
<th>SELDOM</th>
<th>OCCASIONALLY</th>
<th>OFTEN</th>
<th>ALWAYS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sees to it that athletes work to capacity.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. Asks for the opinion of the athletes on strategies for specific competitions.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. Helps athletes with their personal problems.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. Compliments an athlete for good performance in front of others.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. Explains to each athlete the techniques and tactics of the sport.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. Plans relatively independent of the athletes.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. Helps members of the group settle their conflicts.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. Does not take into account athletes' suggestions when making decisions.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. Gets group approval on important matters before going ahead.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. Tells an athlete when the athlete does a particularly good job.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11. Makes sure that the coach's function in the team is understood by all athletes.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12. Does not explain his/her actions.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13. Looks out for the personal welfare of the athletes.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>THE COACH OF MY TEAM.....</td>
<td>NEVER</td>
<td>SELDOM</td>
<td>OCCASIONALLY</td>
<td>OFTEN</td>
<td>ALWAYS</td>
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<tr>
<td>14. Instructs every athlete individually in the skills of the sport.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15. Lets the athletes share in decision making.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>16. Sees that an athlete is rewarded for a good performance.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>17. Controls what athletes can and cannot do.</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>18. Encourages athletes to make suggestions for ways to conduct practices.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>19. Does personal favors for the athletes.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>20. Explains to every athlete what should be done and what should not be done.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>21. Lets the athletes set their own goals.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>22. Expresses any affection felt for the athletes.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>23. Expects every athlete to carry out one's assignment to the last detail.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>24. Lets the athletes try their own way even if they make mistakes.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>25. Encourages the athlete to confide in the coach.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>26. Points out each athlete's strengths and weaknesses.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>27. Refuses to compromise on a point.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>28. Makes decisions regardless of what athletes think.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>29. Gives specific instructions to each athlete on what should be done in every situation.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>30. Asks for the opinion of the athletes on important coaching matters.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>31. Encourages close and informal relations with athletes.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>32. Sees to it that the athletes' efforts are coordinated.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>33. Lets the athletes work at their own speed.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>THE COACH OF MY TEAM.....</td>
<td>NEVER</td>
<td>Seldom</td>
<td>Occasionally</td>
<td>Often</td>
</tr>
<tr>
<td>---</td>
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</tr>
<tr>
<td>34.</td>
<td>Keeps aloof from the athletes.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>35.</td>
<td>Explains how each athlete's contribution fits into the total picture.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>36.</td>
<td>Invites the athletes home.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>37.</td>
<td>Gives credit when it is due.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>38.</td>
<td>Specifies in detail what is expected of athletes.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>39.</td>
<td>Lets the athletes decide on plays to be used in a game.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>40.</td>
<td>Speaks in a manner which discourages questions.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>41.</td>
<td>Expresses appreciation when an athlete performs well.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>42.</td>
<td>Figures ahead on what should be done.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>43.</td>
<td>Pays special attention to correcting athletes' mistakes.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
APPENDIX H

Sport Climate Questionnaire (SCQ) (used in Wave 2)

Sport Climate Questionnaire

This questionnaire contains items that are related to your experience with your coach. Coaches have different styles in dealing with athletes, and we would like to know more about how you have felt about your encounters with your coach. Your responses are confidential. Please be honest and candid.

1. I feel that my coach provides me choices and options.
   1 2 3 4 5 6 7
   strongly disagree  neutral  strongly agree

2. I feel understood by my coach.
   1 2 3 4 5 6 7
   strongly disagree  neutral  strongly agree

3. I am able to be open with my coach while engaged in athletics.
   1 2 3 4 5 6 7
   strongly disagree  neutral  strongly agree

4. My coach conveyed confidence in my ability to do well at athletics.
   1 2 3 4 5 6 7
   strongly disagree  neutral  strongly agree

5. I feel that my coach accepts me.
   1 2 3 4 5 6 7
   strongly disagree  neutral  strongly agree

6. My coach made sure I really understood the goals of my athletic involvement and what I need to do.
   1 2 3 4 5 6 7
   strongly disagree  neutral  strongly agree

7. My coach encouraged me to ask questions.
   1 2 3 4 5 6 7
   strongly disagree  neutral  strongly agree
8. I feel a lot of trust in my coach.

   1 strongly disagree   2   3   4   5   6   7 strongly agree

9. My coach answers my questions fully and carefully.

   1 strongly disagree   2   3   4   5   6   7 strongly agree

10. My coach listens to how I would like to do things.

    1 strongly disagree   2   3   4   5   6   7 strongly agree

11. My coach handles people's emotions very well.

    1 strongly disagree   2   3   4   5   6   7 strongly agree

12. I feel that my coach cares about me as a person.

    1 strongly disagree   2   3   4   5   6   7 strongly agree

13. I don't feel very good about the way my coach talks to me.

    1 strongly disagree   2   3   4   5   6   7 strongly agree

14. My coach tries to understand how I see things before suggesting a new way to do things.

    1 strongly disagree   2   3   4   5   6   7 strongly agree

15. I feel able to share my feelings with my coach.

    1 strongly disagree   2   3   4   5   6   7 strongly agree
## APPENDIX I
Coaching Feedback Questionnaire (CFQ) (used in Wave 2)

### Coaching Feedback Questionnaire
As you perhaps already know, coaches really differ from each other in the type of feedback they give in response to their athletes’ performances. This questionnaire is designed to find out what type of coaching feedback your coach typically gives you in practices and games.

### Coaching Responses to Player’s Successes
Listed below are six examples of feedback your coach might give you after you have a successful performance in a game or practice. PLEASE RATE EACH STATEMENT IN TERMS OF HOW TYPICAL IT IS OF THE KIND OF FEEDBACK YOUR COACH GIVES YOU AFTER YOU HAVE A SUCCESSFUL PERFORMANCE.

<table>
<thead>
<tr>
<th>Not At All Typical</th>
<th>Very Typical</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. “Good play!”</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>2. Coach ignores your good performance.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>3. “Way to go! You really extended your elbow that time.”</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>4. “Great play. Now you’re keeping your eyes on the ball.”</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>5. “Excellent work in practice today.”</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>6. Coach doesn’t say anything to you about your good performance.</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

### Coaching Responses to Player’s Errors
Listed below are ten examples of feedback your coach might give you after you make a mistake or commit an error in a game or practice. PLEASE RATE EACH STATEMENT IN TERMS OF HOW TYPICAL IT IS OF THE KIND OF FEEDBACK YOUR COACH GIVES YOU AFTER YOU MAKE A MISTAKE OR COMMIT AN ERROR.

<table>
<thead>
<tr>
<th>Not At All Typical</th>
<th>Very Typical</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. “That’s O.K. Keep working at it!”</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>8. Coach ignores your error or poor performance.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>9. “That was a really stupid play!”</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>10. “You dropped your elbow. Next time keep it up.”</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>11. “How many times have I told you to extend your elbow?”</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>12. “Hang in there! You will do better next time.”</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>13. Coach doesn’t say anything to you about your error or poor performance.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>14. “Your technique looks lousy! Keep your head up.”</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>15. “That play sucked!”</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>16. “No, that’s not right. You need to work on a faster release.”</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>