

WHO'S COACHING THE COACH? NCAA DIVISION I CROSS COUNTRY AND TRACK
AND FIELD COACHES' KNOWLEDGE OF DEPRESSION AND ATTITUDES TOWARD
CONTINUING EDUCATION

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ABSTRACT

Erin M. Hegarty: Who's Coaching The Coach? NCAA Division I Cross Country and Track and Field Coaches' Knowledge Of Depression And Attitudes Toward Continuing Education
(Under the direction of Erianne Weight)

The rate of depression among collegiate student-athletes is as high as 23% (Wolanin et al., 2016). Unfortunately, student-athletes underutilize available resources (Davoren & Huang, 2014). This study relied on the belief that coaches are integral to ensuring student-athlete wellbeing. The socioecological model was used as a framework for examining coaches' preparation to fulfill that role. A survey of Division I cross country and track coaches revealed that coaches know depression well but may struggle putting knowledge into practice. They demonstrated a strong interest in education in many topics, including mental health. Coaches significantly underestimated the rate of student-athlete depression, highlighting a need for more collaboration/communication between coaches, student-athletes, and medical staff. The results of this study will add to the existing literature on the coaching profession and may help encourage the development of more educational resources for coaches, to their direct benefit and the indirect benefit of student-athletes and universities.

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CHAPTER 1

Introduction

Student-Athlete well-being is an important topic in the realm of intercollegiate athletics right now. The National Collegiate Athletic Association (NCAA) released a video on YouTube on September 30, 2016, expressing its strong and sincere commitment to promoting student-athlete well-being (NCAA, 2016f). Beginning in 2013, the NCAA began stating a commitment to student-athlete well-being as one of nine guiding principles used to develop its legislation (NCAA, 2013). Included in its commitment statement is the mandate that its member institutions conduct their athletic programs in a manner that keeps athletics as an “integral part of the educational experience” (NCAA 2016a).

Just as student-athlete health and wellbeing has become an important topic in recent years, mental health among college-age individuals has also increasingly become a national focal point. Several studies have shown that mental health disturbances are increasing among students (AP, 2010; Mojtabai, Olfson, & Han, 2016; Neighmond, 2011; Prince, 2015). Within the student-athlete sub-population, rates of reported symptoms of depression have ranged from 15.6% to 23% (Proctor & Boan-Lenzo, 2010; Wolanin, Hong, Marks, Panchoo, & Gross, 2016; Yang et al., 2007). Wolanin et al. found track and field athletes to be at an even higher risk of depression, displaying clinically relevant symptoms of depression at a rate as high as 30% (2016).

All of the attention being placed on student-athlete well-being has led to several legislative changes. These include a mandatory minimum rest period between practices for football players, the relinquishment of meal limits, and a mandatory concussion safety protocol (Hosick, 2015;

NCAA, 2016b). With the exception of the requirement for strength and conditioning coaches to hold a certification that was enacted in 2014 (Hosick, 2014), little attention has been placed on the staff that work most directly with student-athletes: coaches. Considering the pressure that the NCAA is under to enhance the student-athlete experience, this seems somewhat surprising, especially in light of many recent events involving head coaches. Mike Rice, the head men's basketball coach for Rutgers University, was fired for physically abusing players (Pearson & Brady, 2013). University of Illinois fired its head football coach for pressuring his athletes to play while injured (New, 2016). Negligence in concussion safety has resulted in student-athlete death (Veklerov, 2016).

Unfortunately, these stories are just a few of countless more: Bobby Petrino, Mike Price, Rick Pitino, the list goes on. The epidemic is hardly in its adolescence; coach misbehavior has been going on for years. Think of Dave Bliss, who allegedly tried to cover up the murder of a player at Baylor University in the early 2000s, or Bobby Knight, who kicked, head-butted, and choked players (and was accused of several other acts of violence) during his time at Indiana in the 1970s through the 1990s (Schlager, 2015; Associated Press, 2006, respectively).

While these situations are extreme and are certainly not representative of the character of all (or even most) collegiate coaches, they are hard to ignore. Behavior like this has led outside observers to wonder just how coaches are being hired or evaluated. This was articulated well by Ramogi Huma, a former college football player who serves as director for the National College Players Association, when he said, "The NCAA needs to take an active role. Instead, they sit on their hands time and time again. They'll investigate players for making a few bucks from selling their own autographs, but if that player is beat up by a coach, or put back into a game with a

concussion, risking his life because the coach wants to win a game, the NCAA does nothing” (New, 2016).

Coaches are an integral part of the college athletic experience. As Bravo and Won put it, “Coaches represent the fundamental pillars of success in collegiate athletic programs” (2009). The influence they have on their student-athletes is enormous. Even before student-athletes set foot on campus, the coach has been an important figure in their lives, as coaching staff is one of the criteria most important to high school athletes when choosing their university (NCAA, 2015).

Currently, there are no minimum standards or criteria that must be met in order to gain employment as a coach at the collegiate level. The only criterion set by the NCAA to obtain coaching eligibility is a compliance certification obtained annually (NCAA, 2016a). Once coaches pass a test over various bylaws within the NCAA manual, they are expected to abide by its legislation. Legislation is largely concerned with maintaining a level playing field and maintaining the “amateur” status of student-athletes (NCAA, 2016a). There is little in the manual in the way of education related to student-athlete health and safety.

Coaches probably spend more time with their student-athletes than any other individual employed by the university; thus, the influence and power they have over student-athletes is significant (LeUnes & Nation, 1989; Zimmerman, 1999). Not only do they play a huge role in the physical well-being of their student-athletes, being that they are largely responsible for training, coaches also touch the emotional and psychological well-being of student-athletes as well (Williams & Scherzer, 2006).

Coaches believe themselves to be educators (Weight, Cooper, & Popp, 2015); most join the field because they want to help and mentor young people. Despite the teaching role and the large

involvement coaches have in the health of their student-athletes, there are no formal educational or certification requirements for the position at the college level. Certifications are offered by outside organizations, but they are not mandatory by the NCAA or by most universities for employment.

Increasing educational opportunities for coaches could benefit student-athletes, universities, and coaches themselves. Student-athletes would benefit from having coaches who are well-informed of prevalent injuries and mental health issues among student-athletes, safe training methods, and relevant legal issues. More education may help coaches by way of elevating the field to becoming a profession, as most definitions classify a profession as a job that requires special training (Cruess et al., 2004; Dahrendorf, 1984; Davis, 1997). Furthermore, coaches may find more success after being equipped with more information regarding the health of student-athletes. If coaches are viewed and trained as educators, there is a possibility it might close the gap often found within higher education between athletics and the academy (Weight et al., 2015). Finally, the potential for reducing the injury rate (both physical and psychological) of student-athletes would reduce costs to the athletic department (and thus the university as a whole). Reducing the number of injuries has the potential to raise the level of athletic performance. Since athletics is considered the “front porch” of a university (Bass, Schaeperkoetter, & Bunds, 2015; Shulman & Bowen, 2011), additional coach education may indirectly result in more promotion of the university and an improved reputation.

Student-athletes are the lifeblood of college athletics. Ensuring the best experience for them is important, and increasing NCAA coaches’ access to education could be a way that does so while also improving the experience of coaches and universities as well.

Purpose of Study

The purpose of this study is to determine current Division I cross country and track coaches' knowledge and awareness of depression in the context of their sport in order to assess whether there is a need for and/or interest in further coaching education.

Research Questions

1. What knowledge do current NCAA Division I cross country and track and field coaches possess regarding student-athlete depression? Are NCAA Division I cross country coaches interested in ongoing continuing education?
2. In what topics would NCAA Division I cross country and track coaches like to receive more education/information?
3. How would NCAA Division I cross country and track coaches like to receive this education?
4. Are there differences in Research Questions 1-4 based on different independent variables including age, gender, years of coaching experience, position (head vs. assistant), and certification history?

Hypotheses

RQ 1. The majority of Division I cross country and track and field coaches will answer at least 75% of survey questions testing knowledge of depression correctly. Coaches with more certifications will have a higher mean score than those without.

RQ 2. The majority of Division I cross country and track and field coaches will be interested in receiving education in at least one topic.

RQ 3. Division I cross country and track coaches will be most interested in receiving further education on how to market their program.

RQ 4. The majority of Division I cross country and track coaches will favor receiving education electronically.

RQ 5. Division I cross country and track coaches will vary in their knowledge of depression differently by age, previous certification(s), and position (head versus assistant).

Definition of Terms

- Coach – someone employed by the university who provides instruction to student-athletes, makes or assists in making tactical decisions during competition (adapted from NCAA Bylaw 11.7.1.1 on “countable coaches”) and whose job title includes the word “coach” (e.g. “head coach” or “assistant coach”)
- DI – Division I of the NCAA
- Depression – mood disorder with severe symptoms that negatively affect one’s daily activities, such as feelings of hopelessness, sleeping difficulties, and loss of interest or joy in previously enjoyed hobbies (NIMH, 2017); diagnosis or display of clinically relevant symptoms
- Educational preparation – undergraduate or graduate coursework; outside coaching-specific programming such as USATF workshops
- NCAA – National Collegiate Athletic Association; a governing body of college athletics
- Odum Institute – organization at the University of North Carolina at Chapel Hill that provides, among other things, consulting services on survey research methods in order to further social science research and education (Odum Institute, 2016).
- Track – shorthand for the sport of track and field

Assumptions, Limitations, Delimitations

Assumptions

1. The measures used in this study are valid and reliable.
2. The data used in this study will be recorded in an accurate and timely manner.
3. The subjects in this study will give sincere and honest responses.
4. The sample will be sufficiently large to generalize results to NCAA Division I cross country and track and field coaches.

Limitations

1. This study is limited to those who voluntarily participate.
2. This study is limited to cross country and track and field coaches and may not be representative of coaches in other Olympic sports.
3. Due to the time and scope of study, only coaches with valid and accessible e-mail addresses will be involved in the survey.

Delimitations

Surveys were sent only to coaches formally employed by NCAA Division I institutions; volunteer coaches and graduate assistants were excluded from the study. The study is limited to Division I cross country and track and field coaches who currently coach.

Significance of Study

To the Coaching Industry:

1. The potential to increase the value of the coaching position if additional education is required or made available
2. The potential to improve the practice of coaches through increased educational programming, thus elevating the profession

To the Student-Athletes:

1. The potential for improved performance
2. Reduced risk of physical injury and prolonged psychological harm

To the University:

1. The potential to improve giving levels
 - a. Research has shown that the satisfaction with one's college athletic experience is the factor which most influences giving generosity of former student-athletes (Jones, 2008)
 - b. The coach plays a large role in student-athlete satisfaction (Baker, Yardley, & Côté, 2003) so better coaches may improve student-athlete satisfaction and increase their likelihood to give in the years following completion of their eligibility
 - c. Student-athletes who receive the help they need to overcome a mental health issue while competing for their university are likely to view their student-athlete experience in a more positive light than student-athletes who did not receive that

help and thus would likely be more inclined to give after completing their athletic eligibility

CHAPTER 2

LITERATURE REVIEW

Introduction

The well-being of student-athletes is an important topic in the U.S. right now. Perhaps now more than ever, student-athlete well-being is a priority among those within athletic departments and outside observers alike. Society expects the National Collegiate Athletic Association (NCAA), intercollegiate sport's largest governing body, and universities to treat student-athletes ethically (Carroll, 1979; Hazzaa, 2015). This includes protecting their well-being, safety, and education (McCuddy, 2007). The NCAA has stated a commitment to protecting the well-being of its student-athletes (NCAA, 2013) and has even admonished future leaders that “nothing...is more important than ensuring the well-being of the student-athletes” (NCAA, n.d.).

The outside pressure to improve conditions for student-athlete well-being has led the NCAA to alter its existing legislation and to adopt important new statutes that favor student-athletes. Some examples include dictating a mandatory minimum rest period between practices for football players, relinquishing legislation which limited the number of meals student-athletes could be given, and stipulating that member universities establish a mandatory concussion safety protocol (Hosick, 2014; NCAA, 2016b). The NCAA also launched a three-year, \$30 million concussion research project in conjunction with the Department of Defense (NCAA, 2016b).

Most effort towards improving conditions for student-athletes has stayed within the confines of the legislation and changing procedure. With the exception of the requirement for

strength and conditioning coaches to hold a certification that was enacted in 2014 (Hosick, 2014), little attention has been placed on the staff that work with student-athletes. This includes coaches, who, among individuals affiliated with the university, likely make the single greatest impact on the health and well-being of student-athletes. Regardless of level of play, athlete satisfaction is heavily influenced by the coach (Baker, Yardley, & Côté, 2003). The role of the coach can hardly be understated, as reflected in Bravo and Won's declaration of the coach as the "fundamental pillars" of college athletic programs (2009).

The relationship between a coach and his or her athletes is often very close, so close that it has been compared to that of a parent and child (Neale & Tutko, 1975). Just as with parenting, there is reward in coaching but also a great deal of responsibility. Most coaches realize the position they are in to influence their athletes and use the opportunity well: they conduct their program in the right way, helping student-athletes reach their athletic potential and giving them an overall incredible experience. After basketball coaching legend, John Wooden, passed away in the summer of 2010, comments by former players included: "he taught us about basketball and life and being the best you can be..." (Walt Hazzard, qtd. in UCLA, 2010); "no one influenced or impacted my life more than coach" (Gall Goodrich, qtd. in UCLA, 2010); he "inspire[d] others to reach levels of success and peace of mind that none of us could ever dream of reaching by ourselves" (Bill Walton, qtd. in UCLA, 2010). Michael Jordan said of Dean Smith: "He was more than a coach – he was my mentor, my teacher, my second father. Coach was always there for me when I needed him and I loved him for it..." (qtd. in Associated Press, 2015). There are countless stories of coaches, from the youth level to professional, being important positive influences in the lives of their athletes.

Clearly, the influence of coaches is significant. Unfortunately, the influence is not always positive. There are also coaches who have caused unnecessary pain and harm to their student-athletes. That grand influence that coaches can have, combined with a power differential between young athletes and their coaches, has led to emotional and sexual exploitation (Brackenridge, Johnston, & Malkin, 2000; Downes, 2002; Gervis & Dunn, 2004; MacKay, 2001). Abuse by coaches is by no means limited to young children (e.g. Brackenridge, 1997; Stirling & Kerr, 2013; Tomlinson, & Yorganci, 1997); college student-athletes, who are still developing intellectually and who care desperately about their sport, can suffer at the hands of coaches just as children can.

Individuals with ill intentions are by and large the minority of collegiate coaches. However, even coaches with good intentions have been responsible for profound student-athlete pain, including irreversible injury and even death (e.g. *Moose v. Massachusetts Institute of Technology*, 1997; Veklerov, 2016). The negative consequences conferred on student-athletes in the stories above were the results of coach unawareness or misinformation. For that reason, increasing coaches' access to education about important issues such as mental health - including depression, one of the most prevalent mental health issue among college students (Gruttadaro & Crudo, 2012; APA, n.d.) - could help them preserve and promote the wellbeing of student-athletes.

In this review of the literature, we will discuss the influence of coaches on student-athletes, the prevalence of depression amongst student-athletes, the current state of the coaching profession, and the potential continuing education has to benefit student-athletes, coaches, and universities.

Coaching Impact

Physical. Coaches are defined in the NCAA manual as individuals employed by the university athletic department to “provide technical or tactical instruction related to the sport to a student-athlete” (NCAA, 2015, p. 52). Merriam-Webster defines a coach as a “person who teaches and trains an athlete or performer” (2016). While these definitions may seem superfluous, they are included here to emphasize the fact that an athletic coach’s fundamental role is to instruct and to provide a training plan that allows (or strives to allow) athletes to reach their potential. Coaches are defined by their heavy involvement – and ultimate authority – in an athlete’s training.

D’Souza (1994) found that the presence of a coach significantly decreased the occurrence of injuries in track and field athletes: only 40.4% of athletes that had a coach present all the time suffered an injury, while 81.8% of athletes who trained without a coach suffered an injury. This demonstrates just how important the role of coaches is in the safety of student-athletes.

One trap that coaches and athletes sometimes fall into is overtraining, a condition in which training sessions are so frequent or intense that an athlete cannot sufficiently recover (Kreider, Fry, & O’Toole, 1998). In a study of college student-athletes and coaches, the majority of both groups acknowledged that coaching is an extrinsic risk factor for overtraining syndrome (Van Wilgen & Verhagen, 2012). Something that complicates the diagnosis of overtraining syndrome is that it can manifest itself differently depending on the type of activity. A sprinter may exhibit different symptoms than a distance runner, for example (Budgett, 1998; Budget et al., 2000; Fry and Kramer, 1991). Given that the same syndrome may appear in athletes differently depending

on their specialty, it is important that coaches be aware of the nuances of any sport/event in which they provide instruction.

Unfortunately, the repercussions of injury can extend far beyond physical discomfort and halted sport participation. The psychological impact may be just as profound as the physical, something that will be discussed in more detail shortly. Considering the negative impact injury has on student-athletes, it is important that we look for ways to prevent and reduce risk wherever possible, one of which may be improved coaching education. Certainly, injuries are a part of competitive athletics. Not all injuries occur at the hands of coaches, and injuries certainly would not be completely eliminated with better-educated coaches. However, given that most injuries are the result of improper training and form, two things coaches are extensively involved with, they are in a prime position to help student-athletes avoid preventable injury. Thus, it is important that coaches have sufficient knowledge of proper form and training principles specific to their sport in order to minimize injury risk and maximize performance.

Emotional. The influence of the coach on a student-athlete goes far beyond the simple X's and O's of training. Coaches can have extensive influence on the emotional and psychological health of their student-athletes as well. This is reflected in a study that examined the greatest sources of stress to student-athletes by Williams and Scherzer (2006) who designated two types of major events that negatively impact student-athletes: general major life events and sport-related major events. General major life events include breaking up with a significant other, the death of a close friend or family member, and moving. Among sport-related major events are "eligibility difficulties, trouble with coaches, and change in playing status" (p. 569). In the study, trouble with a coach fell into the same category of importance on the as a break-up with a significant other and death of a loved one (Williams & Scherzer, 2006). Supporting the important

role coaches play in the lives of their athletes, a study examining the interpersonal relationships between 12 Olympic medalists and their coaches relayed narratives wherein athletes described their coaches as close friends or parent figures (Jowett and Cockerill, 2003). Even as children, athletes find the coach an incredibly important figure. MacAuley (1996) found that youth athletes may believe their coach to be more important than even their own parents. The relationship with their coach only becomes more and more important as athletes continue in sport because they perceive the coach as holding “the power to decide the path of their athletic career” (Gervis and Dunn, 2004). Obviously, relationship with coach is extremely important to student-athletes. Stress to it can hurt student-athletes in many ways, a few of which will be discussed below.

One source of stress to student-athletes is the pressure they feel to perform athletically. The majority of athletes at all levels, from youth to professional, feel this pressure, a fact reflected by the numerous studies which have tried to explain the incidence of “choking” (e.g., Gucciardi & Dimmock, 2008; Wilson, Chattington, Marple-Horvat, & Smith, 2007). Because most student-athletes have been dealing with this from very early in their career, most are not unfamiliar with high-pressure situations and have often developed mechanisms for dealing with said pressure. However, if the pressure exceeds their threshold of tolerance, student-athletes may struggle to meet the everyday demands of their lives (Williams, 2014). Regardless of talent or sport, they can begin to feel overwhelmed and become vulnerable to developing mental disorders such as clinical depression and anxiety (Williams, 2014). This pressure to perform can come from self but also often has outside sources as well. According to Kroshus (2014), the most critical source of outside pressure is coaches. When coaches take the wrong approach with their student-athletes, they “tend to experience greater anxiety and distress, and are at elevated risk of

negative outcomes, including burnout and disordered eating” (73). Unfortunately, burnout - described as a condition in which someone discontinues a previously enjoyable activity because chronic stress has led to a loss of pleasure in the activity (DiFiori et al., 2014) – is thought to be on the rise (Gould & Diffenbach, 2002). The coach-athlete relationship has been found to be linked to burnout; Isoard-Gauthier, Trouilloud, Gustafsson, and Guillet-Descas observed that the quality of the relationship, as perceived by the athlete, is negatively related to burnout (2016). Thus, if the relationship is highly positive, there is a lower level of burnout; conversely, relationships perceived to be low in quality resulted in higher levels of burnout (Isoard-Gauthier et al., 2016). If student-athlete retention is a goal, it is important that coaches are not a significant source of stress to their athletes.

Even in cases when student-athletes do not reach the point of burnout or attrition, chronic stress is still a problem. Several studies have shown that stress hinders performance and reduces enjoyment of student-athletes in competition (Gould, Petlichkoff, Simons & Vevera, 1987; Hafvari & Gjesme, 1995; Hume, Hopkins, Robinson, Robinson, & Hollings, 1993; Kenow, & Williams, 1992; Terry & Slade, 1995). Since college is known to expose students to a new and unique set of stressors (Garrett, 2001; Ross, Neibling & Heckert, 1999), it is important to manage and reduce sport-related sources of stress in order to give student-athletes the best experience and the greatest chance of high performance. Again, the coach-athlete relationship is important in achieving this objective. Athletes that have poor rapport with their coaches experience more sport anxiety (Baker, Côte, & Hawes, 2000; Smith, Smoll, & Weichinan, 1998). Furthermore, coaching behavior is a significant predictor of the total anxiety, concentration disruption, and worry an athlete experiences on competition day (Baker et al., 2000). This means

coaches can help athletes perform to their potential by easing game-day pressure or hinder athletes by contributing to it.

Unfortunately, the effects of stress on performance can be so large as to predispose athletes to injury. According to the stress-injury model proposed by Andersen and Williams (1988), student-athletes with high stress response are more susceptible to injury. A review of injury literature done by Williams (2001) showed that 30 out of 35 studies concluded a positive relationship between injury and life stress. This idea has been supported by multiple studies (Galambos, Terry, Moyle, & Locke, 2005; Patterson, Smith & Everett, 1998; Maddison & Prapavessis, 2007). In other words, student-athletes with high levels of stress suffer injuries at a higher rate than student-athletes with less stress. This is not to say that student-athletes are suffering injuries solely at the hands of stress. Certainly, there are other reasons that student-athletes get hurt, including simple bad luck. However, it is important to be aware of how the emotional state of an athlete can increase his or her vulnerability to injury. If coaches understand this relationship, they will be better equipped to protect their athletes and preserve performance.

When injuries do occur, no matter the cause, this only adds to the stress athletes feel. It has been known for some time that injured athletes experience greater psychological stress than their uninjured counterparts (Brewer & Petrie, 1995; Crossman & Jamieson, 1985; Leddy, Lambert, & Ogles, 1994; Smith, et al., 1993). Depression is a common reaction to injury in serious athletes (Brewer, 2001; Petrie, Brewer & Buntrock, 1997; Smith, Scott, O'Fallon & Young, 1990). Larson, Starkey, and Zaichowskey (1996) found that just under half of a sample of nearly 500 certified athletic trainers believe that every single injured athlete experiences negative psychological effects.

The involvement of the coach can have substantial impact on the student-athlete's recovery. Granito Jr. (2001) found that coaches have a "significant influence on athletes throughout the athletic injury experience" (p. 72). Several studies have shown that better social support, from people such as parents, significant others, and coaches, is related to more positive outcomes for student-athletes coming back from injury (Hardy, O'Connor, & Geisler, 1990; Petrie, 1992; Williams, Tonymon, & Wadsworth, 1986). Unfortunately, many formerly injured student-athletes feel that their coach did not offer the support they needed during the healing and recovery process (Granito Jr., 2001). One student-athlete described the experience this way: "My coaches are the ones who don't believe me...they're blaming me for being hurt" (p. 73). Given that student-athletes with incredibly supportive coaching relationships are not immune to the negative psychological consequences of injury, those with a coach who is uninvolved, unsupportive, or both likely suffer psychologically to an even greater extent.

Interestingly, the negative consequences that stem from injury may not be limited to the injured individual. O'Neill (2008) found that teammates of an athlete who suffers a serious injury can experience an increase in fear and anxiety. O'Neill hypothesizes that this negative emotion causes "injury contagion," a phenomenon in which the resultant stress of a teammate's injury may interfere with an athlete's ability to perform by causing him/her to change his technique/strategy in a way that compromises their health. Although the study's results were inconclusive in establishing the contagion (O'Neill, 2008), it is known that the added stress of having an injured teammate can increase injury risk (Anderson and Williams, 1988; O'Neill, 2008) and diminish performance (Baker et al., 2000; Smith et al., 1998). Considering that coaches are often evaluated by the performance of their athletes (Brewer, McEvoy, & Popp, 2013; Inoue, Plehn-Dujowich, Kent, & Swanson, 2012; Wilson, Schrager, Burke, Hawkins, &

Gauntt, 2011), a poor athlete-coach relationship and experience that results in poor performance is mutually detrimental to all involved: individual performance of the student-athlete falls off, the team performance is compromised, the coach's reputation suffers, parents and fans are dissatisfied, and program reputation may even decline. Clearly, injury hurts everyone in an athletic program from the injured individual to the coach to the rest of the team.

Of course, most coaches don't intentionally add stress to the life of their athletes. However, if they encounter difficult or uncertain circumstances for which they do not have the education or training to know how to make good decisions, they may create stress for their athletes unintentionally. Even just making coaches aware of the importance of stress management may be beneficial.

Psychological. Something related to the emotional stress student-athletes may encounter is psychological stress and illness. Student-athletes are often praised for their power of will and 'mind of matter' mentality (Gregoire, 2014; Taylor, 2012), but that does not mean they are immune to mental health disorders. This is another issue that coaches must be aware of and equipped to handle in order to contribute to their student-athletes' well-being.

It is generally accepted by most biological and psychological professionals that the development of mental disorders is influenced by both genetics and the environment (Belsky & Pluess, 2009; Tsuang, Bar, Stone, & Faraone, 2004). In other words, individuals may have a genetic predisposition to a particular disorder but will only develop that disorder if they encounter the right environmental stimuli. For example, a man may be genetically susceptible to developing post-traumatic stress disorder (PTSD); however, if he never encounters a stressful life circumstance, he will likely never develop PTSD. That said, it is important to note that every

individual has a different stress toleration threshold: Susie may interpret an event as only mildly stressful and moves on easily, while Drew may be completely overwhelmed by the same event (Belsky & Pluess, 2009).

In the context of athletics, this means there is rarely one identifiable cause for an athlete's mental health issue; it is more often a combination of experiences and personality traits that interact to send an athlete into a disorder. As such, it is important that coaches are sensitive to the challenges faced by student-athletes and well-educated on the symptoms of common psychological conditions. Being able to identify when a student-athlete is heading down the path of a serious condition can be critical in helping that athlete change course. If a student-athlete is already in the throes of an illness, identification and getting them the help they need is critical to their long-term outcome (Birchwood, Todd, & Jackson, 1998).

College, for student-athletes and non-athletes alike, is a time filled with abundant opportunity for intellectual, spiritual, relational, and emotional growth (Bowen, 1977; Feldman & Newcomb, 1969). Many reminisce about their college experience for years. However, all of that growth brings with it challenges that can be overwhelming for 18- to 24-year olds. Mental health problems are highly prevalent in the college student population, and this frequency only appears to be increasing (Eisenberg, Gollust, Golberstein, & Hefner, 2007; Twenge, et al., 2010, respectively). One-third of undergraduate students screen positive for a mental health problem (Eisenberg, 2013). The prevalence is not as high – but still significant – among student-athletes, who may have additional “exacerbating risks” compared to general students (Yang et al., 2007), including the demanding schedule, pressure to perform, and public scrutiny.

Participation in athletics has been shown to provide some protection against the development of psychological conditions (Buckworth and Dishman, 2002; Rethorst et al., 2009). However, athletes can also begin to find their identity as completely defined by their ability to perform their sport (Carless and Douglas, 2009; Warriner and Lavalley, 2008). If they are unable to perform, whether due to injury or a “slump” or a relative lack of talent, this can be difficult on their mental wellbeing. For this reason, and more discussed below, multiple researchers have identified athletes as vulnerable to mental health issues (Hughes and Leavey, 2012; Reardon and Factor, 2010).

Depression is one of the more prevalent mental health disorders seen on college campuses (CCMH, 2015). Within the student-athlete sub-population, rates of reported symptoms of depression have ranged from 15.6% to 23% (Proctor & Boan-Lenzo, 2010; Wolanin, Hong, Marks, Panchoo, & Gross, 2016; Yang et al., 2007). Women are more at risk for depression than men, with female student-athletes being much more likely to exhibit clinically relevant levels of depression symptoms (Wolanin, Hong, Marks, Panchoo, & Gross, 2016). Differences in prevalence have also been observed by sport, with track and field (which often includes cross country athletes as well) reporting significantly higher rates of depression than other teams (Wolanin et al., 2016). As discussed above, injured student-athletes are at an increased risk of depression (Brewer & Petrie, 1994). Another potential risk factor for depression, although less common in cross country running, is injury to the head including concussions (Hutchison, Mainwaring, Comper, Richards, & Bisschop, 2009; Kerr, Marshall, Harding, & Guskiewicz, 2012; Mainwaring, et al., 2004). Some events that can contribute to or exacerbate depression that are unique to student-athletes include “choking” in competition (Hammond, Gialloredo, Kubas, & Davis IV, 2013) and ending one’s sport career (Wippert & Wippert, 2008; Wippert &

Wippert, 2010). Navigating team and coach relationships, competing for playing time, and adjusting to more elite levels of competition are other stressors that student-athletes face in addition to the normal college stressors (e.g., academic difficulties, financial hardships, being away from home, making new friends, etc.) (Richards & Aries, 1999).

Despite the fact that student-athletes likely suffer mental health difficulties at the same rate as regular college students, research has shown that student-athletes historically do not utilize their university mental health services (Carmen, Zerman, & Blaine, 1968; Gulliver, Griffiths, & Christensen, 2012; Pinkerton Hinz, & Barrow, 1989). A recent survey of 19,733 student-athletes and 171,601 non-athletes conducted by the NCAA from 2008-2012 showed that this trend has not changed (Davoren & Huang, 2014). This supports the findings of Lipson and Eisenberg (2014), who found that only 10% of student-athletes suffering from serious symptoms of anxiety or depression used mental health services, compared with 30% of general students.

One reason posited as to why student-athletes underutilize the resources available to them is that athletic staff are not well educated on signs of mental and psychological issues. Mentink (2002) found that coaches struggled to recognize when their players displayed signs of depression. Another potential explanation for the underutilization of mental health services by athletes is that athletic staff and/or athletes themselves consider mental distress a sign of weakness and are resistant to facilitating the perceived weakness to the appropriate resources (Storch, Storch, Killiany, & Roberti, 2005). For athletes who do not realize something is wrong, or who do not feel comfortable seeking treatment on their own, failure of coaches and athletic trainers to recognize the athlete's need may result in the athlete continuing to suffer indefinitely.

Another mental disorder prevalent among college-age students is disordered eating. This is an especially relevant topic in athletics because disordered eating has been found to afflict athletes more than the general population (Sundgot-Borgen & Torstveit, 2004). College students are one of the most susceptible populations at risk for an eating disorder, given that the majority of eating disorders begin between the ages of 18 and 21 (Hudson, Hiripi, Pope, & Kessler, 2007). Research also indicates that the rate of eating disorders among college students is increasing (White, Reynolds-Malec, & Cordero, 2011). Student-athletes seem to be a particularly vulnerable subpopulation. One reason that athletes may be at a higher risk is that there is significant overlap between the personality traits of elite athletes and those of individuals with eating disorders: both tend to be disciplined, goal-oriented, competitive, and perfectionistic (Wilmore, 1995; Bastiani, Rao, Weltzin, & Kaye, 1995; Hewitt, Flett & Ediger, 1995; Minarik & Ahrens, 1996; Streigel-Moore, Silberstein, Grunberg, & Rodin, 1990). Female athletes in particular have been found to be at an even greater risk for disordered eating, likely due to unique pressures exerted on female athletes in the sporting environment regarding weight, appearance, body size and shape, and performance (Petrie & Greenleaf, 2012). A study by Hulley and Hill (2001) of elite female runners found a higher prevalence among athletes than expected in non-athletes. Indeed, rates of subclinical eating disorders among female intercollegiate athletes have been reported from 14.5 % to as high as 25.5% (Beals & Manore, 2002; Carter & Rudd, 2005; Greenleaf, Petrie, Carter, & Reel, 2009; Sanford-Martens et al., 2005). That means up to one of every four female student-athletes is experiencing eating disorder symptomology.

Although observed in all sports, eating disorders are often associated with sports that depend on lean body weight (Dick, 1991; Patel, Pratt, & Greydanus, 2003; Smolak, Murnen, &

Ruble, 2000; Stoutjesdyk & Jevne, 1993; Sundgot-Borgen, 1994; Sundgot-Borgen & Torstveit, 2004; Thompson et al., 1999; Torstveit, Rosenvinge, & Sundgot-Borgen, 2008). Specifically, Torstveit et al. (2008) found that 46.7% of elite female athletes in “leanness-demand sports” met criteria for a clinical eating disorder, compared with 19.8% in non-leanness sports and 21.4% of controls (108). Eating disorders have also been found at a higher prevalence in sports in which appearance is important, such as figure skating or gymnastics (Sundgot-Borgen & Torstveit, 2004). Even in traditionally non-aesthetic sports, many sports have appearance paradigms (Sundgot-Borgen & Torstveit, 2010). For example, distance runners are “supposed to be” thin; gymnasts are supposed to be small. Student-athletes may feel pressure to conform to such paradigms, striving to achieve a perceived body ideal in order to be seen as legitimate, which can lead to unhealthy eating pathology (De Bruin, Oudejans, Bakker, & Woertman, 2011; Thompson & Sherman, 2010). Another contributing factor identified by researchers is tight-fitting uniforms, which may make athletes feel more subconscious about their physical appearance (Reel, 2012; Reel, Petrie, SooHoo, & Anderson, 2013; Steinfeldt, Zakrajsek, Bodey, Middendorf, & Martin, 2013). Cross country running encompasses all of these pressures: leanness/being light is often considered a competitive advantage; uniforms have only gotten tighter and less modest; and runners have a reputation of being extremely lean (Joy, Kussman, & Nattiv, 2016; Sundgot-Borgen & Torstveit, 2010). Therefore, it is important that cross country and track coaches are familiar with eating disorder pathology and understand the role they can play in preventing or furthering the development of eating disorders among their student-athletes.

Coaches can have a considerable impact on just how heavily these pressures are felt by their athletes. Research has found time and again that coaches are a significant source of pressure regarding body appearance and weight for competitive athletes in several sports (Howells &

Grogan, 2012; Kerr, Berman, & De Souza, 2006; Reel, 2012; Reel, et al., 2005; Reel & Gill, 1996). Athletes are often driven individuals who strive after perfection and will do anything they believe is necessary to take their game to the next level. If a coach frequently comments on a student-athlete's weight, whether directly or indirectly, there can be unfortunate consequences.

In a survey by Heffner, Ogles, Gold, Marsden, and Johnson, a large proportion of college coaches reported that they monitored the weight of their athletes or were involved in their athletes' weight management (2003). Most coaches also reported that they were aware enough of symptoms to identify athletes suffering from an eating disorder (Heffner et al., 2003). In a different study by Rockwell, Nickols-Richardson, and Thye, around one-third of coaches reported that they were currently treating an eating disorder (2001). However, several studies have found that coaches are actually causal factors in the development of disordered eating among their athletes because of the training recommendations they make (Rosen & Hough, 1988; Ryan, 2000; Thompson, 1998).

Sherman, Thompson, Dehass, and Wilfert found that NCAA coaches had identified an average of about 3 athletes with eating disorders during their careers (2005). 18.3% of coaches said they had never identified an athlete as having an eating disorder (Sherman et al., 2005). If the rates of eating disorders among athletes are as high as 25%, yet one fifth of coaches have never identified an eating disorder in their career, that could mean afflicted student-athletes are not receiving the help and attention they need. Indeed, almost thirty percent of coaches said they knew of at least one athlete who displayed eating disorder symptoms but had not been identified while still competing for them (Sherman et al., 2005).

In regards to education on eating disorders, the majority of coaches who responded to the survey reported having had some education on the subject, either from personal reading, lecture attendance, or televised programming (Sherman et al., 2005). Coaches should be commended for taking the time to search out information on these types of highly relevant health issues. That said, the internet is not always a reliable source of information (Georgetown, 2016) and can lead to gaps in their knowledge. This was demonstrated in the Sherman et al. study. Almost 40% of coaches classified amenorrhea (the absence of a menstrual period) as “normal” (Sherman et al., 2005). However, amenorrhea is not normal; it is one of the three components in the “Female Athlete Triad” and often indicates a deficiency in caloric intake (Kelly, 2016; Putukian, 1994; Yeager, Agostini, Nattiv, & Drinkwater, 1993). The consequences of untreated amenorrhea can be devastating, as amenorrheic athletes may be up to three times as likely as eumenorrheic peers to suffer bone injury (Kelly, 2016). Required education can help close significant gaping holes like this and ensure that all, not just the majority of, coaches have been given the most relevant, accurate information they need to help student-athletes.

Fortunately, coaches are doing a great job getting student-athletes help once the problem has been identified. Coaches reported that athletic trainers, mental health professionals, and other medical staff had the most input (in that order) in deciding whether an athlete was allowed to train or compete (Sherman et al., 2005). In 16.8% of cases, coaches were given the most say in the decision (Sherman et al., 2005). Still, in most cases, coaches recognize when they need to defer to the judgement of medical professionals, something for which they should be applauded. Thus, the crucial role that coaches play in the matter is identifying student-athletes, which is why education and training are important. To assist coaches in that quest, the NCAA developed a handbook for coaches following the Sherman et al. study (Sherman & Thompson, 2005).

It is not the job of a coach to diagnose his or her student-athletes; that is the role of a medical professional. However, being aware of the symptoms of psychological conditions like depression and disordered eating will allow coaches to get their student-athletes the help they need to start moving towards recovery. As is the case with overtraining syndrome, discussed earlier, the same mental health disease can also manifest itself differently in different populations. In other words, certain diseases may not present in the same way for student-athletes as they do in the general population. For example, psychiatrist Todd Stull says that substance use disorders often look differently in student-athletes than the general population (2014). Similarly, eating behaviors that might be seen as disordered in the general population can be “misperceived” as commendable displays of discipline or dedication in the sporting atmosphere (Stewart, Kilpela, Becker, and Wesley, 2015; Thompson, 2014). Thus, if staff that work with student-athletes are only aware of the traditional presentation of disorders, symptomatic student-athletes might go unnoticed and suffer physical and psychological harm because of it. For this reason, a mandatory, nationalized curriculum for coaches that addresses the presentation of some common mental health problems in the student-athlete subpopulation specifically could be extremely beneficial. The sooner the problem is identified, the sooner it can be addressed and the sooner the student-athlete can start returning to a healthier lifestyle (Beals & Monroe, 2000). What makes depression, and many other mental health problems, so challenging is that its victims may not be aware of the problem. Epstein et al. (2010) found that many people diagnosed with depression reported not realizing that something was wrong, in some cases for years. Thus, student-athletes may be suffering from depression or an eating disorder and not even know it. Given the insidious nature of many mental health problems and

the fact that student-athletes may be reluctant to seek help, it is especially important that coaches and athletic trainers have the knowledge they need to aid struggling student-athletes.

Fortunately, the NCAA has created some resources for its members to make caring for student-athlete well-being easier to do. This includes a manual on mental wellness, sexual assault, and sports medicine (NCAA, 2016d). It has also published a “best practices” handbook that addresses mental health. These are certainly excellent resources for NCAA coaches and trainers. However, it may be beneficial to incorporate the most important information from these resources into a national certification process to ensure that student-athletes are in the hands of appropriately educated individuals.

It is difficult to separate the psychological, emotional, and physical health of student-athletes because they are all greatly interrelated. The physical can affect the emotional, which can affect the psychological, which can affect the physical. This is what makes the responsibility of coaches, like teachers, so enormous: they are working intimately with young, impressionable people. As such, coaches should be given the tools they need to make wise decisions regarding their student-athletes’ health and well-being. A continuing education program is one way of equipping coaches with those tools. Doing so may not only elevate the student-athlete experience but also the coaching experience as well.

The Field of Coaching

According to Figone, many universities view teaching and coaching as the same with the only difference being the “skill level and motivation of participants” (1994, p. 29). If that assumption is true, then the two professions should have similar training and qualification requirements. However, that is not the case. In addition to holding a four-year degree, teachers

must pass a certification exam in their state of practice and, in most states, must have had student teaching experience prior to obtaining a teaching position (USDE, n.d.). However, there is no uniformity across universities or states in the standards coaches must meet in order to coach. Gilbert, Côté and Mallett found that, in a sample of fifteen coaches at three different levels of competition, few coaches spent time in formal coach training (2006). With little formal education, it is more likely that coaches draw on their past experience as players and fall into the trap of “coaching as they were coached.” Background as an athlete can certainly be advantageous – more than one study has found experience as an athlete as essential for becoming an expert coach (Erickson, Côté & Fraser-Thomas, 2007; Wiman, Salmani, & Hall, 2010). However, it may also make it easier for coaches to rely on the training they had as an athlete, which may include outdated mindsets that designate psychological conditions such as depression as lack of mental toughness (Storch et al., 2005).

Coaching can be a very rewarding career (Frey, 2007, p. 50; Hjälm, Kenttä, Hassménan, & Gustafsson, 2007; McLean & Mallett, 2012; Raedeke, Granzyk, & Warren, 2000). However, it can also be a uniquely stressful job because of the heavy workload and the large audience, from the hundreds to the millions, evaluating coaches’ performance (McLean & Mallett, 2012). Having to wear such a wide variety of hats add to their job stress (Giges, Petitpas, & Vernacchia, 2004, p. 431). Frey found that when coaches were under more stress than they could manage effectively, they were less focused, more emotional, and more indecisive (2007). Because of their unique demands, coaches can be susceptible to burnout (Giges et al., 2004).

The reported rates of burnout among coaches have varied: some studies have found the rate comparable to other helping professions, while others have reported it both lower and higher than average (Hjälm et al., 2007). Regardless of the actual rate, it is clear that coaching can be

highly stressful. Anything that can be done to reasonably reduce the level of stress coaches feel should be done; doing so will benefit both coaches and the student-athletes they lead. Because being held to high expectations in situations for which people are not prepared to succeed can be stressful (Capel, Sisley, & Desertrain, 1987), education could be a way to reduce the stress coaches feel by way of equipping them to deal with the complex situations involving student-athletes. Further, previous research has shown that individuals who learn and grow in their job are more likely to find greater satisfaction in their job (Rowden, 2002). Thus, increased access to educational opportunities could also help reduce burnout by increasing job satisfaction.

Current Standards. Currently, the only uniform requirement of NCAA coaches is compliance-related. In order to participate in recruiting, coaches must pass an exam over the current legislation regarding what is and isn't okay to do during the recruiting process (NCAA, 2016). Beyond this, the qualifications necessary to coach are left to the discretion of each university. Most universities prefer a college degree, athletic experience, and coaching experience (NCAA, 2016f). A specific field of study or request for USATF or other certification is mentioned very little, if at all. Coaches may have never had any education on mental health, injury prevention, or other topics which could help them coach their student-athletes more safely and effectively.

The NCAA does publish various handbooks that can help educate coaches on various issues from nutrition to concussion safety to mental health (Brown, 2014; Parsons, 2014; Sherman & Thompson, 2014). While the information is relevant and useful, one shortcoming is that it is not sport-specific. Furthermore, it is not mandatory; coaches are neither required to read or be tested over the material.

Current Cross Country and Track and Field Coaching Certifications

USA Track and Field (USATF), the national governing body for track and field in the United States, is probably the most commonly utilized source of coaching certification in cross country and track and field. There are three levels of certification, with Level 3 signifying the greatest level of expertise. According to the USATF website, level 1 certification requires attending a two-and-a-half-day course in which participants spend 21.5 hours of both “classroom instruction and hands-on training” in “track and field related sports science” (USATF, 2016). Following the conclusion of the event, participants have 90 days to pass an online exam with at least 80% in order to receive their official Level 1 certificate. Obtaining Level 2 certification requires attending a week long course of “sport science instruction and exams covering biomechanics, physiology, psychology and training theory” (USATF, 2016). Level 3 can be obtained by attending an “intense” 6.5-day course and then completing four assignments and a project within the next six months or by attending at least three Level 3 seminars and writing a technical article for publication (USATF, 2016).

When asked how many coaches have completed each of the three certification levels, a USATF representative estimated that around 20,000 coaches had completed Level 1 since its inception; around 6,000 for Level 2; and between 800 and 1,000 for Level 3 (anonymous, personal communication, November 1, 2016). The large majority of these numbers coach at the high school and youth level, with a small group from college (anonymous, personal communication, November 1, 2016). The representative also shared that USATF does no active marketing or promotion of its education; their website is the primary source of information for coaches looking to be certified (anonymous, personal communication, November 1, 2016).

The U.S. Track and Field and Cross Country Coaches Association (USTFCCA) also offers “specialist certification” and “Masters certification” for coaches in any event grouping within track and field (e.g. sprints, hurdles, and relays or jumping) (USATF, 2016). Certification is gained by completing one course at the specialist level; the masters level requires four additional courses and meeting the “mentorship and publication requirements” (USATF, 2016). The USTFCCA also offers a certification course for collegiate head coaches that covers such topics as sports psychology, travel management, and finances (USATF, 2016). The United States Sports Academy (USSA) offers three levels of certification as well. Certification Level I covers principles that are applicable to coaches of all sports, including ethics and injury prevention. Level II requires coaches to take two additional sport-specific courses that cover skill development techniques, and Level III “examines the study of human movement and its relationship to sports activities” (USSA, 2016).

These courses provide scientifically-backed training tips and techniques that coaches can implement in order to facilitate optimal athletic performance. The inclusion of recent, data-driven information in coaching curriculum is laudable; it gives coaches the information they need to train athletes in a way that reduces injury risk and promotes athletic improvement. However, the USATF and USTFCCA certifications leave more to be desired. The USATF content is limited strictly to “sports science”; coaches are taught very little about student-athlete well-being or any other relevant subject that falls outside of physical training. The USTFCCA’s collegiate head coaching certification, which includes some sports psychology, is a step in the right direction. But because certification requires a minimum of three years of formal coaching experience, the information is limited to experienced coaches while novice coaches, who may need the information most, are excluded. It could be very beneficial for a more well-rounded

curriculum to be adopted by these agencies so that coaches are better equipped to promote the emotional, psychological, *and* physical well-being of their athletes.

Coaching education and certification has also been a topic of importance at the high school level. In recognition of the prominence coaches have in the lives of their athletes, the National Federation of State High School Associations (NFHS) created an online collection of educational courses and resources for high school coaches. NFHS began offering the courses in 2007 with the hopes of “changing the culture” of high school coaching; that is, returning to an age where coaches *teach* athletes (Howard, 2015). Since its inception, most states have begun requiring their coaches to complete a course in first aid and safety as well as a “fundamentals of coaching” course in order to coach students (NFHS, 2016). The cost of the courses ranges from \$35 to \$90 depending on the state the individual will be coaching in. The NFHS provides several additional courses, both general and sport-specific, which coaches can access in order to improve their trade. Some courses, like “Preventing Heat Illness” and “Creating a Safe and Respectful Environment,” are free; others, such as “Coaching Track and Field” and “Teaching and Modeling Behavior,” cost between \$20 and \$50. In addition to its educational online modules, the NFHS also offers two levels of coaching certification.

While these certifications provide coaches with tremendous opportunities for professional development, they are under-utilized. Most schools do not require coaches to pursue any of these certifications or any other professional development opportunities, despite the critical role coaches play (Collins, Barber, Moore, & Laws, 2011; Winchester, Culver, & Camiré, 2012a, 2012b). The impact these have on the coaching profession is limited by the fact that they are optional within the NCAA and high school athletic associations. Certification certainly looks nice on a résumé, but employment at any level is currently not conditional upon certification.

Furthermore, since multiple organizations can offer certification in the same sport, two “certified” coaches may have received different educations. The lack of uniformity complicates establishing reasonable expectations for coaches in areas such as health and safety, as those certified by one organization may have received a cursory overview of a topic while those certified by a different organization may have received thorough and comprehensive instruction on the same topic; noncertified coaches may have no knowledge of the issue whatsoever. Another concerning issue comes from information from the USATF website which states, “To ensure acceptance into the event group of your choice, USATF recommends applying early!” (USATF, 2016). This indicates that access to course material is likely limited to a certain number of coaches. If a coach does not apply early enough, he or she might not have access to that information for some extended period of time and might continue to coach athletes accordingly. In the end, lack of education and resources for any athletic professional in the university athletic department, be it the head coach, athletic trainers, strength and conditioning coaches, or sports medicine providers, ultimately harms the most important constituent of all: student-athletes .

Conceptual Framework

Socioecological Framework. It can be helpful to consider the possible need for coaching education in the context of the socioecological model, which can offer a broader perspective on factors related to a need for coaching education (Kerr et al., 2014) and provide a meaningful organizational structure to this dialogue. The model, often used in public health research, considers how an issue or phenomenon is affected by multiple levels of influence (Bronfenbrenner, 1977; Kerr et al., 2014; Stokols, 1992; Stokols, 1996). The logic behind the socioecological model is that a behavior can be best understood after examining all of the competing and complementing influences on that behavior (Bronfenbrenner, 1977), as well as

how those influences interact with each other (Kerr et al., 2014; Stokols, 1992). Once multiple factors influencing an issue or behavior have been considered, solutions or responses that address those different factors can be developed in order to promote change from multiple angles (Kerr et al., 2014). Such “multi-level interventions,” as Kerr et al. put it, are likely to be more successful at effecting change than those which only address one influencing factor (2014).

In the context of this study, there are multiple factors or levels of influence to be considered. Consistent with the socioecological model (see Figure 1), these can be organized into a sphere of concentric circles, each representing a separate level of influence (Kerr et al., 2014). The outermost circle of influence in the sphere is society and its expectations, specifically the standards it holds coaches to. This is followed by law and policy, including NCAA legislation, legal obligations, and standards within other professions. The next ring is the environment, which includes the access coaches have to certification and educational materials, followed by interpersonal interactions, most notably being those of coaches with their student-athletes and fellow athletic department staff. Lastly, there is the intrapersonal level, which includes coaches’ knowledge, beliefs, and attitudes about issues affecting student-athletes and their personal role in the lives of student-athletes.

This model provides a means for interpreting survey results in the context of the most relevant level of influence (e.g. policy or environment). By examining results according to the level of the framework in which they fall, the areas that need to be addressed can be more easily identified and ineffective strategies for improving coaching education and awareness can be more easily avoided. For instance, if the survey shows that there is a need for increased coaching education, the model can help determine which level is currently the greatest barrier to coaches receiving that education so that strategies that target that level can be generated. An example

could be if coaches were found to be wholly amenable to coaching education but felt they had limited access, an effective intervention would focus on making changes to their environment or policy rather than trying to improve coach attitude. The model allows for a more comprehensive view of the current state of collegiate coaching education (Kerr et al., 2014).

Importance of Study

Clearly, coaches play a huge role in the student-athlete experience, touching the physical, emotional, and psychological. Because of that enormous responsibility, it may be appropriate that the NCAA adopt legislation that requires its member coaches to undergo some sort of certification related to mental health. This idea is supported by research. In a study that reviewed past research on coaching, Gilbert and Trudel concluded that coaching education was being widely recognized as important and vital for a profession growing so rapidly (2004). Multiple studies have found that coaches become more effective from participating in coaching education and professional development (Cushion, Armour, & Jones, 2003; Gilbert, W., Lichtenwaltdt, Gilbert, J., Zelezny, & Côté, 2009; Gilbert, Nater, Siwik, & Gallimore, 2010). Gilbert et al. also concluded in their 2010 study that the best coaches are good at teaching (Gilbert et al., 2010). If teachers must be certified to teach, then it seems reasonable that coaches must be certified to coach. This could benefit student-athletes, coaches, and the university.

For student-athletes. The coach and coach-athlete relationship have been identified consistently as the most important factors affecting the experience of athletes (NASPE, 2006). For that reason, student-athletes, the most important constituent in college athletics, stand to gain immensely from having better educated, more aware coaches. Giving coaches education that teaches them known best practices could result in fewer injuries and illnesses among their

student-athletes. Coaches cannot be expected to abandon outdated training methods without knowing they are outdated. Ensuring that coaches are aware of the safest techniques and methods is a way to reduce preventable injuries among athletes.

Emotional and psychological injuries could be reduced in the same way. Because of the amount of time that they spend with their student-athletes – practice, competitions, team meetings, travelling, etc. – coaches are in a prime position to identify if a student-athlete is struggling - that is, if they have the knowledge to do so. A coach can only offer appropriate help to a struggling student-athlete if they are aware of the symptoms. As research has shown that the earlier a disorder is addressed, the less long-term damage and often the better the recovery outcome (Rome, et al., 2003; Beals & Monroe, 2000), having knowledgeable coaches could result in less time away from sport, reduced long-term damage, and overall better outcomes for student-athletes.

Beyond safety and maintaining the status quo, a mandatory coaching certification may improve the educational aspect of athletics participation. Research has shown that sport programs, when run well, have the potential for significant social and character development (Power, 2015; Power & Sheehan, 2014). When student-athlete well-being is a priority, they will gain more from their athletics experience.

Participation within the NCAA is at an all-time high (Irick, 2015). That means the experience and development of thousands of athletes, who will become the next generation of doctors, lawyers, teachers, business people, etc., could be affected for the better by better-equipped coaches.

For Coaches. Increased coaching education opportunities or a certification process could also be of significant benefit to coaches as well. First, it could elevate the status of the job, moving it closer to a profession. Although there is no consensus on what exactly constitutes a profession (Cruess, Johnston, & Cruess, 2004), most definitions include that the service provided requires a specialized knowledge and education and that there is both a regulatory body and a code of ethics (Cruess et al., 2004; Dahrendorf, 1984; Davis, 1997). If a certification were developed and governed by a regulatory body, and if the certification included a commitment to ethical behavior, coaching could potentially achieve the status of a profession. This may increase the amount of respect that coaches are given. Although the majority of NCAA Division I coaches view themselves as educators, they feel they are not perceived by others as educators (Weight et al., 2015). “We are held up to public scrutiny on a regular basis, we are judged on our wins and losses whether that be right or wrong, and we have no job security. We are teaching life lessons that are not taught in the classroom. We complement the academic education process, but we are not valued as faculty...” (qtd. in Weight et al., 2015). A certification requirement may help to close the discrepancy and improve the credit that people give to coaches.

Another potential benefit is simply that coaches may improve their performance with more education. In a survey of expert coaches at the high school level, coaches reported that continuing their education was imperative to their improvement as coaches (Hardin, 2000). Coaches are often measured by the performance of their student-athletes (Brewer et al., 2013; Inoue et al., 2012; Wilson et al., 2011). As such, if they are able to produce better results by improving their training methods, they have a higher chance of advancement in their career.

Lastly, relevant education or a certification process could help reduce coaching burnout. With the amount of celebrity that has been attached to NCAA athletics and the inexorable gaze

of smart phones and other media, coaches may feel a considerable amount of pressure to do everything perfectly (Rynne, Mallett, & Tinning, 2006). Not only are they expected to win and produce results (Mageau & Vallerand, 2003), they are also expected to do no wrong when it comes to student-athletes and their well-being. That is a lot of pressure to carry on one's shoulders, especially when encountering difficult situations, and can be an enormous source of stress. Research has shown that considerable stress and feelings of dissonance occur when individuals are held to expectations with which their abilities, goals, or beliefs do not align (Capel et al., 1987). Thus, if coaches feel they don't have the training/knowledge necessary to help their student-athletes in certain situations but are still expected to know what to do, they may feel considerable stress. However, if coaches are better prepared to deal with these situations, they may experience less stress and retain more of their joy, which could in turn lead to higher retention.

Just as negative coaching interactions contributes to athlete burnout (Isoard-Gauthier et al., 2016; Kroshus, 2014; Udry, Gould, Bridges, & Tuffey, 1997), so do negative athlete interactions contribute to coach burnout (Dale & Weinberg, 1989; Kelly et al., 1999; Vealey, Udry, Zimmerman, & Soliday, 1992). Further, several studies have found that athletes develop negative attitudes toward their coaches do not give helpful feedback or cannot give instruction appropriate for their level of performance (Barnett, Smoll, & Smith, 1995; Black & Weiss, 1992; Horn, 1985; Smith, Smoll, & Barnett, 1995). It is easy to see how a burnout "cycle" develops: if a coach doesn't have the tools he or she needs to address the needs of an athlete, the athlete may develop a negative attitude. Out of that negative attitude, the athlete begins to give the coach difficulty, which in turn makes it harder for the coach to be positive with the athlete. There is tension in the relationship, and because the coach continues to coach ineffectively, the athlete's

negative feelings may grow stronger. After a prolonged amount of negative interactions, both parties may begin to feel burnt out. Further, athletes' whose coaches are burnt out reported higher amounts of anxiety and burnout (Price & Weiss, 2000). Conversely, if a coach gives quality instructional feedback and makes good decisions regarding athlete well-being, the athlete is more likely to find satisfaction and enjoyment in their sport (Smoll et al., 1993). Those kind of behaviors and decisions require knowledge in areas in which coaches may have had no previous experience. Most coaches want and strive to do what is best for their student-athletes. Improving their access to education is a way to give them the tools they need to succeed in fulfilling that mission while also giving them a better experience as well.

For the university and athletic department. Lastly, certification or increased educational opportunities could benefit the entirety of college athletics. There are several critics who think athletics have lost their place in academia (Benford, 2007; Smith & Willingham, 2015; Southall & Nagel, 2009; Zimbalist, 1999). Though certainly not a fix-all solution, coaching education could be tailored to include material on the importance of the coach's role as a teacher. Perhaps this could ease some of the tension between academia and athletics.

Another direct benefit of higher coaching qualifications to the athletic department and university may be reduced medical bills. If coaching education lowers the rate of injury among student-athletes, that could save athletic departments a significant amount of money given how expensive the cost of doctor visits, diagnostic imaging, and other health care procedures can be (Lundy, 2016).

Additionally, if student-athletes are healthier, they are more likely to perform well. Athletic success elevates the reputation of the both the athletic department and the greater university,

given that athletics are considered the “front porch” of the university (Bass, Schaeperkoetter, & Bunds, 2015; Shulman & Bowen, 2011).

An indirect benefit to the athletic department may be better fundraising success. Research has shown that student-athletes are more likely to give than regular students and that satisfaction with one’s college athletic experience is the factor which most influences giving generosity of former student-athletes (Jones, 2008). Student-athletes who have positive experiences with their coaches and maintain a high level of well-being are more likely to be satisfied with their experience, which in turn improves the chances that they will eventually become financial supporters. In a time when the costs of being competitive in intercollegiate athletics are ever rising (NCWGE, 2002; Suggs, 2001; Suggs, 2003), this is an important potential benefit.

Conclusion

Dr. Brian Hainline, the NCAA’s chief medical officer, has said of the NCAA, “We are in a place to supply education. The reality is that not every coach is sensitive to the mental health issue. We want mental health to be as treatable as an ankle sprain” (qtd. in Wolff, 2015). If that is truly a goal of the NCAA, if it is as committed to student-athlete wellbeing as it asserts, then it may be time that it takes a more active role in equipping individuals who have a tremendous impact on that wellbeing – coaches. Ensuring that coaches have been exposed to accepted safety guidelines, relevant legal issues, and important health information is one way of helping to protect student-athletes, universities, and coaches themselves. The NCAA should consider adding coaching standards or continuing education if it wants to continue to classifying itself as a body that protects student-athletes and promotes athletics as education.

Certainly, there is more to successful coaching than application of the latest exercise physiology research and knowledge of mental health conditions affecting student-athletes. There are several characteristics of a good coach that cannot be taught, such as the ability to distinguish between situations where what an athlete needs most is a supporter and where what the athlete needs is some tough love. Successful coaches are able to develop good, working relationships; establish clear and comfortable lines of communication; motivate athletes to perform; learn the idiosyncrasies of individual athletes and use that knowledge to the advantage of the athlete; and identify hidden talent. In reality, training is just one piece of the puzzle. But it is an important piece of the puzzle. A coach can only take his or her athletes so far using injurious training methods; student-athletes can only perform so well while suffering psychologically. Coaching education or certification is a way to help coaches and student-athletes avoid unnecessary harm and to ensure that intercollegiate athletics truly *are* educational and *are* adding value to the student-athlete academic experience and to the university as a whole.

CHAPTER 3

METHODOLOGY

Purpose of the Study

As mentioned above, student-athlete wellbeing is a stated priority of the National Collegiate Athletic Association (NCAA). Included in student-athlete wellbeing is their mental health. One condition relatively prevalent among college students and student-athletes is depression (APA, n.d.; CCMH, 2015; Gruttadaro & Crudo, 2012; Proctor & Boan-Lenzo, 2010; Wolanin, Hong, Marks, Panchoo, & Gross, 2016; Yang et al., 2007). Unfortunately, it has been found that student-athletes underutilize the resources available to them that can help assuage or end their symptoms (Carmen, Zerman, & Blaine, 1968; Davoren & Huang, 2014; Gulliver, Griffiths, & Christensen, 2012; Lipson and Eisenberg, 2014; Pinkerton Hinz, & Barrow, 1989). There are currently no national, uniform criteria governing the employment of NCAA coaches. As such, there may be wide variation in their educational backgrounds and previous training on mental health. The primary aim of this research was to investigate the training and knowledge current NCAA Division I cross country and track and field coaches have regarding depression. Furthermore, the study was designed to determine what interest coaches have in receiving continuing education and, if so, to identify what topics have the greatest demand.

Instrument

An instrument was developed for this study that included both Likert scale, multiple-choice, and free-response questions. Survey questions were based on a review of the literature,

and the survey was designed to address the research questions stated in Chapter 1. Specifically, it was meant to determine the level of knowledge Division I cross country and track and field coaches have regarding depression. The second main objective of the survey was to gauge the level of interest coaches have in receiving continuing education over a variety of topics. It was reviewed by members of the Odum Institute for Social Science Research (see “Definition of Terms”) and research advisors at the University of North Carolina in order to ensure validity. The survey was distributed to participants electronically via the research software Qualtrics.

The survey collected basic demographic information, including age, gender, race and coaching salary. This information was collected in order to help determine whether the sample was representative of the population of interest. It was also used in the results analysis to identify any trends by age group, race, gender, and salary. The portion of the survey asking coaches about their knowledge of depression was modeled after the Adolescent Depression Awareness Program (ADAP) Depression Knowledge Questionnaire by Hess, et al. (2004); a small number of questions about depression as it relates to college athletic participation (based on the review of the literature) were also added. The majority of these questions were true/false, with two free response questions that allowed for further clarification of how coaches understand and respond to depression in their athletes. The survey questions which asked coaches about their preferences regarding continuing education were largely multiple-answer, multiple choice, with the opportunity for free-response so they could express any specific interests that were not included in the survey. The survey consisted of 29 questions and can be seen in Appendix A.

Methods

The survey was accessible by a link sent via email. In order to secure as many responses as possible, surveys were sent to all NCAA Division I cross country and track and field coaches currently on file with the NACDA directory and possessing valid email address. Email addresses were obtained through an annual subscription to the NACDA Directory, purchased by UNC School of Exercise and Sport Science. Once email addresses were collected, a link to the survey was then emailed to each coach using the program Qualtrics. 1410 email addresses were sent links to the survey, 57 of which bounced (for a total of 1353 valid email addresses). The survey was sent on February 28, 2017. Coaches were given eight days to complete the survey before a follow-up email was sent to coaches who had not completed to the survey. Data collection was concluded twenty-one days following the initial email invitation to participate, at which point the survey was closed and no longer accessible to email recipients.

Participants were instructed to answer questions honestly and to the best of their understanding. It was assured that answers would remain confidential. Once survey responses were obtained, qualitative data was analyzed by two independent reviewers as a whole in or in order to identify any common themes or trends. The two reviewers shared themes and then coded qualitative data utilizing a master code. Intercoder reliability was analyzed utilizing Scott's Pi and yielded an alpha level of 0.962 with 96.8% coder agreement – a very high level (Lacy & Riffe, 1997; Scott, 1955; Sullivan, 2014).

This study was largely exploratory in nature. As such, descriptive statistics were used to describe survey results pertaining to research questions 1-5. Analysis was completed using the statistical software SPSS and Excel.

In research question 5, which asks whether any differences exist in research questions 1-4 relative to different participant characteristics, the dependent variables include performance on depression questionnaire, level of interest in receiving continuing education, and preferred method of receiving education. The independent variables used were age, gender, certification history, length of coaching experience, event specialty, and position (head versus assistant). Outcomes were compared by the independent variables listed using analysis of variance (ANOVA) and Chi-Square analysis.

Participants

All Division I cross country and track and field coaches with valid email addresses registered to the National Association of Collegiate Directors of Athletics (NACDA) database were offered the opportunity to participate in the study. Both head and assistant coaches were included; volunteer coaches were excluded. Emails were sent to 1353 coaches, 253 of which responded. This corresponds to a response rate of just under 19%. Coaches from all track event specialties submitted answers.

Because of limited time and resources, it was decided that surveys would be sent to only coaches within the sports of cross country and track and field at the Division I level. The study was limited to the segment of Division I coaches described above because Division I often tends to be the “trend-setter” within college athletics. This is perhaps true now more than ever given the autonomy granted to the five largest conferences in Division I by the NCAA in 2014 (Solomon, 2014).

In order to assess the representativeness of our sample, demographic information specific to these conferences was compiled from the NCAA Sport Sponsorship, Participation and

Demographics Search. Survey respondent demographics were compared with those of 2015-16 Outdoor Track coaches in the database. 25% (n=56) of survey respondents were female, and 75% (n=170) were male. 78% (n=179) of the sample was white, non-Hispanic, 15% (n=35) was black, non-Hispanic, 3% (n=7) was Hispanic or Latino, and the remaining 4% fell into another category of race and ethnicity. Four individuals selected one or more race. These numbers fall fairly close to those stated by the NCAA Sport Sponsorship data, falling within ten percent of both gender and race for women's teams coaches and within 15% for gender and race of men's teams coaches (NCAA, 2016e). Thus, it was concluded that the sample is fairly representative of the entire Division I cross country and track coach population.

CHAPTER 4

RESULTS

Demographics and Coaching Characteristics

The overall response rate of the survey was 18% (n=253). Demographic questions were placed at the end of the survey, so there was some drop-off in responses to these questions. Of coaches who responded to the survey, 74% were male (n=170) and 26% were female (n=59). The majority of coaches who responded to the survey identified as Caucasian (78%, n=179) and fell between the ages of 30 and 50 years old (63%, n=134). A complete listing of respondent demographic information is shown in Table 1.

Respondents were also asked to provide their coaching title, college coaching experience in years, and event specialty. The mean coaching career length to date at the collegiate level was just over fourteen years, with the median being eleven years and the range being 54 years. For analysis purposes, coaching experience was divided roughly into quartiles, so that around 25% of the sample fell into each category of experience (see Table 2). The largest number of respondents coach cross country and middle-distance and distance track events (43%, n=110). Full results are shown in Table 2.

Table 1*Demographic Information of Participating Coaches*

	%	<i>n</i>
Sex		
Male	74%	170
Female	26%	59
Age		
20-29	21%	45
30-39	35%	76
40-49	26%	58
50-59	18%	40
Race		
American Indian/Alaskan Native	1%	3
Asian	1%	3
Black, Non-Hispanic	15%	35
Hispanic/Latino	3%	7
White, Non-Hispanic	78%	179
Native Hawaiian/Pacific Islander	1%	2
Other	3%	6
Former Cross Country or Track Participation?		
Yes	99%	251
No	1%	2
Former College Student-Athlete		
Yes	91%	230
No	9%	23

Table 2*Experience Characteristics of Participating Coaches*

	%	<i>n</i>
Coaching Title		
Head Coach	33%	82
Assistant Coach	53%	134
Other	14%	35
Event Specialty		
Cross Country/Mid Distance/Distance	44.5%	110
Jumps	16%	39
Sprints/Hurdles	25.5%	63
Throws	14%	35

Years of College Coaching Experience

0-5 years	22%	54
6-10 years	24%	59
11-19 years	29%	73
20+ years	25%	63

Note: Mean years of coaching experience is 14

Knowledge of Depression

Previous training or education. This study surveyed coaches to see what the primary sources of their knowledge of depression are. Coaches were able to select as many of the listed sources as appropriate and were also given the opportunity to share other sources of information. The most common source of depression education was printed materials, which was selected by 60% (n=151) of respondents. See Table 3 for full results.

Table 3

Prior Depression-Related Education of Participating Coaches

	%	<i>n</i>
Sources of Information		
None	16%	40
Lectures	51%	128
Printed Materials	60%	151
NCAA Website	14%	36
Other Websites	22%	55
Conversation with Mental Health Expert	47%	119
Videos or Television Shows	16%	41
Other	11%	27

n = 252

Personal evaluation of knowledge depression. Coaches also were asked to self-evaluate their knowledge of depression (its symptoms, consequences, resources, etc.) on a scale from “Not well at all” to “Very well.” The largest percentage of coaches, at 43% (n=109), said they

understand depression “moderately well.” Only 10% (n=26) of coaches who responded to the survey felt they understand depression “very well.” Full results are listed in Table 4.

Table 4

<i>Coaches' self-assessment of their understanding of depression</i>		
	%	<i>n</i>
Very well	10%	26
Moderately well	43%	109
Slightly well	38%	96
Not well at all	8%	21
<i>n</i> = 252		

Demonstrated knowledge of depression. For this study, a modified version of the ADAP Depression Knowledge Questionnaire developed by Hess, et al. (2004) was used. Respondents were asked to identify twelve specific statements related to depression as true or false. In addition, they were asked to list five symptoms of depression if possible (a free response question).

The mean score and mode on the depression questionnaire portion of the survey was 83%, and the distribution of scores was fairly normal. The lowest score was 50%, while the highest score (achieved by 24 (10%) of the coaches) was 100%.

The majority (>50%) of coaches answered ten of the twelve statements correctly. Two of the statements – “the prevalence of depression is equal among men and women” and “Major Depression is a curable medical illness” – were correctly identified as false by less than 45% of respondents. The full set of statements and coaches’ responses can be seen in Table 5 below.

Table 5*Coach Performance on Depression Questionnaire*

	%	<i>n</i>	%	<i>n</i>
	Correct		Incorrect	
As many as 1 in 4 collegiate student-athletes suffers from depression during college. (T)	91%	217	9%	21
Depression runs in some families. (T)	97%	232	3%	8
Depression can be controlled through willpower. (F)	86%	203	15%	34
The prevalence of depression is equal among men and women. (F)	45%	107	55%	130
A change in behavior is a symptom of depression. (T)	78%	185	22%	52
Injury increases a student-athlete's risk of depression. (T)	98%	234	2%	4
Major Depression is a treatable medical illness. (T)	92%	218	8%	19
A person with depression always feels sad. (F)	99%	236	1%	3
The abuse of drugs and alcohol can be a sign of depression. (T)	98%	234	2%	4
Major Depression is a curable medical illness. (F)	42%	98	58%	137
Depression increases a student-athlete's risk of injury. (T)	92%	219	8%	19
Student-athletes are less likely than their non-athlete peers to seek help for depression. (T)	79%	187	21%	49

n = 235 - 240

Coach ability to list symptoms of depression. In order to further demonstrate their personal knowledge of depression, coaches were asked to list 5 symptoms. The most common symptoms identified by coaches can be seen in Table 6. Of the coaches who responded, 15% (n=29) were unable to list five symptoms.

Table 6*Symptoms of depression identified by coaches*

	<i>n</i>	%
Exhaustion/Tired/Fatigue/Low Energy/Lethargy	90	45%
Sleeping Changes (Difficulty, Lack, or Excess)	85	43%
Isolated/Alone/Withdrawn/Less Social	82	41%
Changes in Diet/Appetite/Eating Habits	75	38%
Change in Weight or Appearance/Hygiene	57	29%
Acting Out/Behavior Changes	56	28%
Decreased Concentration/Focus/Attention	55	28%
Loss of Interest/Joy	52	26%
Depressed Mood/Unhappy	42	21%

Decreased Performance (athletically, academically, or both)	37	19%
Alcohol/Drug Abuse	36	18%
Loss of Motivation	35	18%
Thoughts of Suicide/Dying	22	11%
<hr/>		
<i>n</i> = 198		

Personal Experience with Depression

In addition to testing coaches' factual knowledge of depression, coaches were able to share from their personal experience with student-athletes suffering from depression, including how they were made aware of a student-athlete's condition most often and how they have dealt with the circumstances in the past.

The two most common avenues by which coaches were alerted that a student-athlete was suffering from depression were the athlete self-reporting (43%, *n*=102) and the coach identifying their symptoms (35%, *n*=83). Of the coaches who selected "other" in response to the question, several (6%, *n*=13) said they often found out through a combination of the student-athlete self-reporting, identified the athlete's symptoms, and being informed by a trainer or teammate.

Coaches were asked to tell how they responded to a student-athlete with depression most recently. The most common themes in respondents' answers were meeting with student-athlete for one-on-one conversation (*n*=82), referring the student-athlete to campus resources (*n*=69), and encouraging the student-athlete to seek help (*n*=50). A full list of themes identified in qualitative analysis can be seen in Table 7.

Table 7*How coaches respond to student-athletes suffering from depression*

	<i>n</i>	<i>%</i>
Meet/talk one-on-one	82	39%
Refer to, provide information about campus resources	69	33%
Encourage student-athlete to seek help	50	24%
Alert medical staff (sports medicine, sports psychologist, athletic trainer)	43	21%
Show support (gave my support, be there for him, here to talk, etc.)	31	15%
Listen	17	8%
Follow up or monitor	16	8%
Alert other staff (faculty advisor, athletic dept. staff, head coach, etc.)	13	6%
Flexibility with student-athlete's training schedule	9	4%
Share from personal experience	7	3%
Remove stigma, normalize	7	3%
Ask if they want to talk	6	3%

n = 209

Formal Education and Certification

Coaches were asked to indicate their highest level of formal education completed and in what area. For the majority of coaches who responded to the survey (63%), a master's degree was the highest level of education completed. Approximately 2% (n=4) had completed a doctoral degree. Coaches received their degrees in a variety of subjects; there were more than 30 different programs of study. The most common area of study was education, while the second most common area of study was administration of some sort (business, recreation, sport, etc.). Full results can be seen in Table 8.

Table 8*Education of Participating Coaches*

	%	<i>n</i>
Highest Level of Completed Education		
High School/GED	0.4%	1
Some College	1%	3
Bachelor's Degree	34%	78
Master's Degree	63%	145
Doctoral Degree	2%	4
Five Most Common Areas of Study		
Education (Broad)	23%	53
Administration or Management (Business, Sport, Higher Ed, etc.)	17%	38
Exercise/Sport Science	12%	27
Kinesiology	7%	15
Business	6%	14

n = 231

To measure sport-specific training, coaches were asked to indicate whether or not they hold or are currently pursuing a number of different coaching certifications, including USATF levels 1, 2, and 3, and USTFCCCA Distance. More than 74% of coaches (*n*=163) said they already hold at least one sport-related certification, and 45% of coaches (*n*=99) hold two or more. 13% (*n*=28) are currently pursuing at least one certification. If coaches held or were pursuing a certification not listed, they were asked to identify the program. These coaches indicated that they hold or are pursuing International Association of Athletics Federations (IAAF) Level 5 certification (*n*=6), USTFCCCA Strength and Conditioning (*n*=14), and other, nonspecific strength and conditioning certifications (*n*=7). See Table 9.

Table 9

<i>Coaching Certification Trends</i>						
	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
Coaching Certifications	Already Hold		Currently Pursuing		Do Not Hold	
USATF Level 1	69%	146	3%	6	28%	60
USATF Level 2	40%	76	6%	12	53%	101
USATF Level 3	6%	9	7%	10	87%	126
USTFCCCA Endurance Event	15%	25	3%	5	81%	132
Other	53%	49	3%	3	43%	40

n = 212

Interest in Continuing Education

Level of Interest. This study sought to discover whether or not coaches were interested in receiving continuing education and, if so, how much. Coaches were asked to rank their interest in a variety of topics, including nutrition, mental health, and business, from “No Interest” to “Strong Interest.” Of the coaches who responded to the survey, 77% (*n*=178) indicated a “strong interest” in at least one topic; 64% (*n*=164) expressed a strong interest in two or more topics. 98% (*n*=225) of coaches indicated a “slight interest” or greater for at least one topic of education, meaning only 2% (*n*=5) of coaches who participated in the study indicated they had no interest in any continuing education.

Topics. The topic which received the greatest interest was injury prevention, with 55% of coaches (*n*=140) expressing a strong interest. The topic which received the least amount of interest was business/fundraising/entrepreneurship for athletic programs, as only 23% of coaches (*n*=54) indicated strong interest in learning more about this. Coaches were also able to suggest other topics for which they would like to have access to continuing education. Of those who suggested a topic not listed in the survey, coaching/leadership received the most support (*n*=3).

Beyond that, there was little consensus among the twelve topics suggested. Full results are listed in Table 10.

Table 10

<i>Interest in Continuing Education Topics</i>								
	%	<i>N</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
	None		Slight		Moderate		Strong	
Injury prevention	3%	6	5%	12	32%	74	60%	140
Nutrition	3%	7	7%	16	31%	72	59%	137
Strength and Conditioning	4%	9	10%	22	32%	74	55%	127
Legal Considerations of Coaching	9%	20	25%	57	39%	89	28%	65
Entrepreneurship for athletics	18%	41	29%	68	29%	68	23%	54
Sports Psychology	3%	7	6%	14	33%	76	58%	135
Mental Health	3%	6	12%	27	34%	79	52%	120
Other	52%	12	13%	3	13%	3	22%	5

n = 234 - 236 ; note: other topics of interest included mentoring/leadership, depression, and technique

Preferred method of receiving education. Coaches were also given the opportunity to share how they would most like to receive this information. The survey asked participants to indicate their chief preferred method of receiving information from the following list: video modules, face to face instruction, printed manual/book, electronic manual/book, or other. If other was selected, the respondents were prompted to indicate their preferred medium for the continuing education. The most popular choice among coaches for receiving this education was video modules, which was indicated as the most preferred or second most preferred method by 27% (n=61) of coaches. The second most selected choice for either most or second most preferred manner of receiving continuing education was by printed manual or book (25%, n=56). Full results can be seen in Table 11.

Table 11*Preferred Methods of Receiving Information*

	%	<i>n</i>	%	<i>n</i>
Preferred Methods	First Choice		Second Choice	
Video modules	29%	67	25%	57
Face to face instruction	29%	67	16%	37
Printed manual/book	14%	33	30%	67
Electronic manual/book	23%	53	27%	61
Other	4%	8	1%	3

Note: Video modules was selected most for either first or second most preferred method

Trends in Knowledge of Depression and Interest in Continuing Education

The final research question addressed in this study was whether or not there are trends in knowledge of depression and attitude toward and preferred method of receiving continuing education based on a number of independent variables, including age, years of coaching experience, prior possession of certification, gender, and event specialty. Knowledge of depression was measured by the percentage of correct answers from the 12-question scale.

Knowledge of depression. One-way ANOVAs were run in order to determine whether a significant difference in the performance on the depression questionnaire existed between male and female coaches, length of college coaching experience, event specialty, coaching title (assistant versus head), and coaches with differing numbers of certifications. A confidence level of 0.05 was used for all one-way ANOVAs.

Significant differences were not observed by gender; length of coaching experience; coaching title; or certification history.

A significant difference $F(3,221) = 3.54, p = .009$ was observed between distance/mid-distance/cross country coaches and sprints/hurdles coaches. Distance/mid-distance/cross country

coaches had a mean score of just under six percentage points higher than sprints/hurdles coaches. No significant differences were found between any other event specialties.

A significant difference $\chi^2(18, N = 235) = 48.71, p < .001$ was observed in the mean scores of coaches based on how well they estimated they understand depression. Coaches who said they felt they understand depression moderately achieved a perfect score on the depression questionnaire more often than expected.

Interest in continuing education. Chi-Square Tests of Independence were run in order to determine whether a relationship exists between the level of interest in continuing education and coach gender, length of college coaching experience, event specialty, coaching title (assistant versus head), and number of certifications. A confidence level of 0.05 was used.

Significant differences were not observed between male and female coaches, coaches with greater or fewer years of college coaching experience, head and assistant coaches, or coaches of differing event specialties.

A significant difference $\chi^2(3, N = 257) = 13.07, p = .004$ was observed between coaches with differing numbers of certifications. Coaches with no certifications were significantly more likely to not express interest in continuing education.

Preferred method of receiving education. Chi-Square Tests of Independence were used to determine whether there were a relationship between the preferred method of receiving continuing education and gender of coaches, length of college coaching experience, event specialty, coaching title (assistant versus head), and number of certifications. A confidence level of 0.05 was used.

Significant differences were not observed between males and female coaches; coaches with greater or fewer years of college coaching experience, event specialty, coaching title (assistant versus head), or number of certifications held.

CHAPTER 5

DISCUSSION

This study had two primary objectives. The first was to determine how well NCAA Division I cross country and track and field coaches understand depression in the context of their sport, in order to determine whether there is a need for further coaching education. The second is to explore prevalent coaching attitudes towards continuing education and the topic of student-athlete wellbeing. The study set out to determine what topics coaches are most interested in learning more about and how they would most like to receive the information. This research is important first step in exploring issues of coach knowledge and training that can significantly benefit both student-athletes and coaches.

Importance of Study

Mental health among college-age individuals has become a national focal point in recent years. Several studies have shown that mental health disturbances are increasing among students (AP, 2010; Mojtabai, Olfson, & Han, 2016; Neighmond, 2011; Prince, 2015). In fact, research by Twenge et al. has shown that Americans, including college students, are more depressed than they have been in decades and an incredible five times as many young people suffer from certain psychopathology than young people studied in the Great Depression (2010). Addressing this national mental health problem has even become a priority of Congress, who once again instated a Garrett Lee Smith Memorial Act Reauthorization (GLSMA) in 2015, with the aim of reducing the number of suicides in people ages 15-24 (Ginsberg, 2015).

Even within the realm of athletics, mental health has received increasing attention. Research focusing on athletes as people has increased significantly since 2002 (Doherty, Hannigan, & Campbell, 2016). Depression is one of the more prevalent mental health disorders seen on college campuses (CCMH, 2015). Within the student-athlete sub-population, rates of reported symptoms of depression have ranged from 15.6% to 23% (Proctor & Boan-Lenzo, 2010; Wolanin, Hong, Marks, Panchoo, & Gross, 2016; Yang et al., 2007).

Depression is a particularly relevant topic in the sport of track and field. Several researchers have found that athletes who participate in individual sports are at a greater risk of developing depression than those who participate in team sports (Schaal et al., 2011; Nixdorf et al., 2013; Nixdorf, Frank, & Beckmann, 2016; Wolanin et al., 2016). Furthermore, Wolanin et al. identified track and field itself as having the highest prevalence of depression amongst the eight sports included in the study (2016).

Coaches have been identified as very important figures in the lives of student-athletes (Jowett and Cockerill, 2003; MacAuley, 1996; Williams & Scherzer, 2006). Hence, they can (and should) be involved in protecting the mental health of the athletes entrusted to them by the university, the athletes' parents, and the athletes themselves. This discussion will be organized by research question and will focus on the demonstrated knowledge of coaches, their desire for continuing education, and how the results fit into the socioecological framework that has guided this study.

Research Question 1

Knowledge and awareness of depression. It was hypothesized that coaches would achieve a mean score of at least 75% on the ADAP Depression Questionnaire portion of the survey. In fact, the mean score was 83%. Multiple coaches (10%, n=24) were able to identify all

12 statements as true or false correctly, and 70% (n=163) of coaches achieved a score of 83% or higher. The Adolescent Depression Awareness Program (ADAP), who created the Depression Knowledge Questionnaire on which the knowledge portion of this survey was modeled, aim to receive a score of at least 80%. Thus, the 234 track and cross country coaches who completed this portion of the survey met this standard, meaning they have ‘depression literacy’ (ADAP, 2009). For a group of individuals who are not meant to be experts in the subject matter, this is a very good performance and demonstrates that these coaches have adequate knowledge of the symptoms and characteristics of depression.

When looking at the individual statements, the majority (>50%) of coaches identified ten of the twelve true or false statements correctly. The two statements that were only answered correctly by the minority of coaches were “Major Depression is a curable medical illness” and “The prevalence of depression is equal among men and women.” The majority of coaches (58%) incorrectly identified the statement as true, when in fact it is false. According to ADAP, Major Depression is *treatable*, not curable (Hess et al., 2004). Although the difference in wording is slight, it is an important one; it is important to understand that an athlete with depression may struggle with the illness for the rest of his or her life, if not given the proper treatment and attention to minimize the condition, or that it may “flare up” when life circumstances change. Similarly, 55% of coaches identified the statement that men and women suffer from depression equally as true, when it is actually false. It may be important, especially for coaches who work with both men’s and women’s teams, to know that their female athletes are more susceptible to depression.

Coaches’ estimates of student-athletes with depression. The average estimation made by coaches as to the percentage of student-athletes with depression they have coached was 12%.

However, it should be noted, that there were a small number of estimates that were exceptionally high; in fact, the highest estimate was 90. Other outliers were 50 and 80. If those three outliers (50, 80, and 90) are excluded, the average estimate of student-athletes with depression made by coaches was about one percentage lower (11%). Both of these estimated rates of depression among their student-athletes are well below the rates reported by prior research studies with student-athletes. Across all sports, studies have found rates between 15.6% and 23% (Proctor & Boan-Lenzo, 2010; Wolanin, et al., 2016; Yang et al., 2007). Wolanin et al. reported the rate of depression amongst track and field to be over 30% (2016) – almost three times higher than the rate reported by coaches in this study. There are a few reasons that could explain why coaches' estimates do not match up with those of previous research. The first is that coaches may have misread the question and provided a raw number of student-athletes they had coached with depression as opposed to a percentage. (Percentage was asked for rather than number to take into account that some coaches may have coached a much larger number of athletes than others, so raw numbers would be harder to glean information from.) However, if anything, a mistake of this kind would be more likely to overinflate the estimated percentage than underinflate, given that a raw number would be higher than its corresponding percentage. A similar reason that could explain the difference is that the previous literature has recorded incorrect prevalence rates. A third, and the most likely, reason that participants' estimates did not line up with previous research is that coaches do not realize how much their student-athletes are struggling with depression symptoms. If this is the case, then it may not be a problem of lack of depression knowledge but rather a lack of awareness amongst coaches. 43% of coaches stated that they found out a student-athlete was suffering from depression most often by the student-athlete self-reporting. This may be the cause of the disconnect. Student-athletes may be reluctant to share

with their coach that they are struggling from depression. Instead, they may turn to the department's sport psychologist, on campus counseling, or their athletic trainer, each of whom is obligated to keep their conversations confidential (CITE). They may be reticent to share with their coach because they are worried it will be perceived as mental weakness (Storch et al., 2005) or they are worried it will disrupt the relationship dynamic they have with their coach, which is incredibly important to student-athletes (MacAuly, 1996). They may also be worried that the coach will share the information with teammates. They may also be worried about the athletic repercussions that may follow if they share, wondering if coaches will pull them from competition or limit their training.

Further, coaches likely struggle to identify depression in their student-athletes on their own. After all, it is much easier to take a twelve-question test, with only two answer choices (and thus a fifty percent chance of being correct), than to actually identify symptoms in a living, breathing human being. This is supported by Mentink, who found that coaches struggle to recognize when their players displayed signs of depression (2002). That means if an athlete declines to tell their coach about their depression, their coach may never know.

This has important potential consequences. Student-athletes suffering from depression are at a greater risk of injury (Galambos et al., 2005; Patterson et al., 1998; Maddison & Prapavessis, 2007); some of the chief symptoms of depression include fatigue, difficulty sleeping, and loss of appetite, none of which provide student-athletes with a good foundation for intense training. If coaches aren't aware that an athlete is struggling with depression, they cannot know that they may need to alter the student-athlete's training. In addition, athletes may be less likely to disclose their depression during peak competition periods. However, this may be the time that they need help the most, as these parts of the season are often accompanied by stress over the pressure to

perform. Thus, the lack of communication between athlete and coach can put the athlete at serious risk of being injured. In addition, it may also be beneficial for a coach to know his or her student-athlete has depression because it may change the way they need to relate to the athlete. For example, feelings of guilt and worthlessness are associated with depression (NIMH, 2017). Coaches who are aware of their athlete's depression may tailor their feedback after a training session to make sure it isn't hypercritical, so that they are not unintentionally adding to the athlete's perceived lack of worth. Thus, it is important to work with both student-athletes and coaches to reduce the discomfort and stigma surrounding mental illness that is prevalent in our society (Parcesepe & Cabassa, 2013).

43% of coaches said they feel they understand depression moderately well. These coaches achieved a perfect score on the depression questionnaire more often than expected. One would assume that a perfect score would correspond with understanding depression "very well." There are two possible explanations for this. The first is simply that coaches underestimate how well they understand depression. The second is that they feel understanding depression "very well" requires more than being able to recognize facts about depression. A future study could ask coaches what gaps they feel they have in their understanding of depression and what they would like to know that would take them from understanding depression moderately well to understanding depression very well. Instead of testing their knowledge of depression facts, it may be beneficial to ask them how we can better equip them to identify and support student-athletes with depression.

Coaches did describe some very positive behaviors in their responses to a student-athlete having depression. 39% mentioned meeting with that student-athlete in a one-on-one setting to talk. 33% referred the student-athlete to resources on campus, and 21% alerted a member of the

sports medicine staff to the situation. These are all positive reactions to helping a student-athlete. However, there is certainly some room for improvement. Only 4% of coaches mentioned altering the student-athlete's training plan, and nearly a quarter of coaches (24%) only encouraged their student-athlete to seek help (rather than actually setting up help for the student-athlete through their sports medicine staff or campus). Some universities have small sports medicine staff. However, almost all universities offer free counseling services to their students. Studies have found that student-athletes traditionally underutilize the resources available to them when struggling with a mental health issue. Knowing this – which 79% of coaches said that they do – coaches should do more than simply suggest that their student-athletes get help. Research shows how powerful the influence of a coach can be (Jowett and Cockerill, 2003; MacAuley, 1996; Williams & Scherzer, 2006). Rather than simply encouraging their student-athletes to seek help, coaches should consider seeking help for the student-athlete and doing all they can to ensure that the student-athlete is receiving the help they need.

Only about 3% of coaches mentioned talking to their student-athletes from personal experience (with friends, family, or self) with depression or trying to let athletes know they are not abnormal or crazy for what they're going through. One of the reasons researchers believe that student-athletes may not utilize the resources available to them is that there is a stigma associated with mental health or that getting help for a mental illness means being weak (Storch, Storch, Killiany, & Roberti, 2005). Coaches may refer athletes to campus resources, but if they are not clear that they (as the athlete's coach and an important figure in their life) do not see them as weak for seeking help, it may not result in the athlete actually pursuing those resources. It is important that coaches show support every step of the process for their athletes.

This highlights a limitation of the current study. Coaches may have taken certain steps in responding to an athlete with depression that they failed to write down in their free response answer. So it is possible that more than 3% of coaches made a point to let their athlete know that what they're going through does not make them weak or crazy but that only 3% wrote it down when asked. It may have been better to offer a list of actions they could have taken and ask them to indicate all actions on the list that they took.

When asked to list five symptoms of depression, coaches performed fairly well. 85% of coaches were able to list five symptoms. The most commonly identified symptoms were exhaustion (45%) and sleeping difficulties (too much or too little; 43%), and only 21% of coaches listed depressed mood as a symptom of depression. Though the condition derives its name from the latter symptom, it is positive that coaches recognize the other two symptoms as possible signs of depression because they are two symptoms that may be easy to overlook or are less obviously related to depression. Lethargy and difficulty sleeping could be caused by a multitude of conditions, but knowing that depression is a possible cause may help coaches identify student-athletes who need help more quickly.

Surprisingly, no individual symptom identified by more than half of coaches. This suggests that coaches may not be able to elaborate on depression to the degree that their test scores might suggest they could. It is always easier to recognize information than recall it. In a future study, it may be helpful to ask coaches to identify the characteristic symptoms of depression from a list rather than (or in addition to) recalling. The important part is that coaches are able to identify symptoms in their athletes and piece together information to make sure athletes do not fall through the cracks.

Knowledge of depression based on previous education, certification, event specialty, etc. It was hypothesized that coaches would vary in their knowledge of depression based on age, participation in certification courses, and position (head versus assistant). This hypothesis was not supported by the findings of this study. There was no significant difference in mean score based on age, gender, length of college coaching experience (in years), position title, or number of certifications. However, mid-distance/distance/cross country coaches demonstrated significantly more knowledge than sprints/hurdles coaches. This may be due to the nature of their events. Technique is very important to obtaining success in the sprints/hurdles; the difference technique makes in endurance events, on the other hand, is much smaller and may only come into play at the highest levels of competition (national- and world-class events). Thus, endurance coaches may focus more on looking for other competitive advantages than sprints coaches do.

There may be a different culture amongst the sprints than that of distances, or distance coaches may have had different educational preparations than sprints coaches. These could be topics for future research.

Another reason that could account for the difference was that distance coaches may have coached more athletes with depression in the past than sprints coaches. Demographic data published by the NCAA for the 2015-16 school year showed that Division I cross country participants are 72% white, 9% black, and 7% Hispanic/Latino; for the same year, Division I outdoor track participants are 55% white, 25% black, and 5% Hispanic/Latino (NCAA, 2016e). Previous research has shown that whites are at a significantly higher risk of depression than African-Americans and Hispanics (Riolo, Nguyen, Greden, & King, 2005). Therefore, it may be that cross country/distance coaches have had more prior experience with athletes with depression

than sprints/hurdles coaches because they often coach more white athletes. However, there was no significant difference in the estimate sprints and distance coaches gave for prevalence of depression amongst their past athletes. It could be that distance coaches have more experience with eating disorders, which can related to or concurrent with depression, than sprints coaches. However, previous research has not found a significant difference in eating disorder symptoms between sprinters and distance runners (Hausenblas, & McNally, 2004). A future study could survey track and field student-athletes and look for statistically significant differences between the different event groups to see if there is a difference or not.

Because having multiple certifications resulted in no significant difference in performance on the ADAP depression questionnaire, one may want to conclude that certifications are ineffective or not worth coaches' time. However, the caveat to this study is that it was limited only to coaches' knowledge of depression, which is not covered in the most popular track and field certifications. As such, being certified is not an advantage to performing well on the ADAP depression questionnaire. The counterargument is that the most popular and widely available coaching certifications are not covering some very important topics. If they were, it is likely that coaches with more certifications would have performed better on a test of mental health than their non-certified peers. This highlights the need for new training courses covering topics beyond technique and sport performance or the addition of these to currently existing certification curriculum. This is not the first time coaches have demonstrated a desire/need for continuing education that covers material beyond traditional sport content (Vargas-Tonsing, 2007).

Research Questions #2 – 4

Interest in continuing education. It was hypothesized that the majority of Division I cross country and track and field coaches would be interested in receiving education in at least one topic. The survey confirmed this prediction. 77% indicated a strong interest in receiving continuing education on at least one topic, 98% of coaches indicated having a slight interest or greater in one or more topics, and 70% indicated a strong interest in two or more topics.

Despite the high degree of interest in receiving more education on a variety of topics expressed by coaches, many of the most common certifications hardly touch on many of these topics, if at all. The most common certification held by coaches in this survey was USATF Level I (69% of respondents). This training covers track and field sports science (USATF, 2016); Levels II and III are focused on “biomechanics, physiology, psychology and training theory” (USATF, 2016). That means mental health, business, legal issues, strength and conditioning, and nutrition are either receiving minimal to no attention at all. The International Association of Athletics Federations (IAAF) certification, which is held by six coaches, also seems to cover predominantly physical performance as well (IAAF, 2017). Given these facts, the NCAA and these organizations may consider expanding their curricula or producing more materials that are accessible to coaches without having to complete a certification.

Topics of interest. It was hypothesized that Division I cross country and track coaches would be most interested in receiving further education on how to market their program. However, this was not the case. In fact, business/marketing/entrepreneurship for athletic programs was the topic that received the least amount of interest by coaches (18% indicated “no interest,” more than double the amount of coaches who expressed “no interest” for any other

topic.) It is hardly a surprise that coaches expressed the greatest amount of strong interest - 60%, 59%, and 58% respectively – in injury prevention, nutrition, and sports psychology, as these are topics that coaches likely believe will offer a competitive advantage to their athletes. They expressed much less interest in the legal issues of athletics and marketing one's own athletic program. This probably reflects the impetus coaches feel to win. Universities and athletic departments expect their coaches to produce results, to tally more wins than losses on the scorecard each season. This can produce an enormous amount of stress, especially if coaches don't feel like they have been equipped to produce the high level of success that their job depends on.

Socioecological framework. The socioecological model was chosen to help determine what level or sphere of influence surrounding coaches is most affecting their current level of depression awareness. Levels include society and its expectations, specifically the standards it holds coaches to; law and policy, including NCAA legislation and legal obligations; the environment, which includes the access coaches have to certification and educational materials; interpersonal interactions, most notably being those of coaches with their student-athletes and fellow athletic department staff; and the intrapersonal, including coaches' knowledge, beliefs, and attitudes about issues affecting student-athletes and their personal role in the lives of student-athletes.

Because coaches performed well on the depression questionnaire, there does not seem to be a problem at the intrapersonal level. This is affirmed by the fact that coaches expressed high levels of interest in continuing education, including topics that affect student-athlete wellbeing; it appears that they would take advantage of opportunities to learn. Society probably affects coaches' performance for the better, in that the pressure it places on them to treat student-athletes

well may increase their motivation to be knowledgeable on topics related to student-athlete wellbeing. Policy is likely a somewhat neutral influence on coaches' knowledge of depression since NCAA legislation does not require coaches to complete certifications or trainings related to mental health. This is an opportunity to ensure good performance on questionnaires such as this one; if coaches were required to complete a training in order to be eligible to coach, they would do it. And even more so, if they were held accountable for the information by having to pass a test, they would likely absorb the information even further. It appears that track and cross country coaches don't need this impetus regarding depression, but it may be helpful for other topics or other sports. The environment is the most relevant socioecological sphere affecting coaches. 18% of coaches said they had no training regarding depression, yet 98% of coaches expressed a slight interest or greater in mental health and 52% of coaches expressed a strong interest in receiving education on mental health. The discrepancy between coaches' education and desire for education indicates that there may not be enough opportunity for that education or there may be barriers preventing them from taking advantage of educational opportunities. A future study could ask coaches what barriers they face in receiving education. One plausible answer is lack of time; this is something that can only be changed through policy (requiring university's to allot time to their coaches for the purpose of education in order to be a member) or through tailoring the current infrastructure of trainings and certification offerings to help coaches receive education when they do have more time.

The intrapersonal sphere of influence may also be an important piece to the puzzle, given that coaches significantly underestimated the prevalence of depression in their athletes. It is likely that they are unaware of the true number of their student-athletes struggling with this issue; this is likely in large part because student-athletes do not feel comfortable sharing with

their coaches (as discussed above). An important next step, then, is to facilitate more conversation between coaches and student-athletes. Both parties need to be targeted in order to close the communication gap. Student-athletes need to be educated on the link between depression and injury risk, encouraged to share with their coaches, and assured that their disclosure won't hurt their reputation. Similarly, coaches need to be educated as to the importance of creating an environment in which student-athletes are not stigmatized for asking for help or displaying signs up mental health conditions. Without both sides making changes, there cannot meaningful change.

Where should these changes come from? At the Division I level, in which the athletic department is often very isolated from the rest of campus, action most likely needs to come from the NCAA and athletic departments. (However, at the Division II and III levels, in which there is a less stark line between academia and athletics, it may work well to use university-wide initiatives for educating both student-athletes and their coaches/faculty.) If coaches are not held responsible by their athletic department or the NCAA, the compliance rate of completing a training is likely to be very low; coaches may not immediately see this as something that contributes to their team's athletic success, so they may give it a low priority amidst all of their other responsibilities. However, the long-term benefit of a mental health training or depression seminar would be worth the time and effort put into requiring coaches to participate.

As mentioned above, society does have high expectations for how coaches treat the student-athletes under their influence. Research has shown that considerable stress and feelings of dissonance occur when individuals are held to expectations with which their abilities, goals, or beliefs do not align (Capel et al., 1987). Thus, if coaches feel they don't have the training/knowledge necessary to help their student-athletes in certain situations but are still

expected to know what to do, they may feel considerable stress. Giving coaches easier access to and a greater quantity of information related the topics that affect student-athlete success – such as mental health and wellbeing, nutrition, and proper training habits – could help coaches feel better equipped to fulfill the high expectations set for them by society. Reducing the stress that coaches feel will not only lead to better performance but could also help to reduce burnout in the field (Frey, 2007; Giges et al., 2004).

Preferred methods for receiving education. It was hypothesized that the majority of coaches would favor receiving education electronically. This was partially true. The primary method coaches indicated they would like to receive education is video modules; the second most preferred method was face-to-face instruction. This may indicate that coaches want more than surface level information; they want to learn from people, either by video with the opportunity to return to the information at their convenience or in person with the opportunity to ask questions. Coaches are in the business of teaching and instruction, so it makes sense that they would like to be taught and instructed in a more hands-on way than reading an online document or hardback book.

This exposes a current need in the coaching industry. The NCAA has little opportunity for coaches to receive video or face-to-face instruction. As 98% of coaches indicated a strong interest in continuing education on one topic or another, there does not seem to be a demand problem but rather a supply. Almost three fourths of coaches (74%) already hold or are currently pursuing a certification, which means they are willing to take advantage of the educational opportunities presented to them. Hence, it may be a worthwhile investment to create more regular, relevant educational resources for coaches.

As with any research study, there are some outside factors that should be considered before making broad conclusions. For example, this study had a response rate of approximately 18%, which prompts some questions related to the sample. Were the 257 who chose to respond to the survey also more likely to be the kind of people who choose to pursue certifications and educate themselves in topics related to their career? This is a limitation of the study; it was voluntary, so therefore they may be a self-selection bias.

Conclusion

Coaches should be applauded on their knowledge of depression. The mean score on the depression questionnaire was 83%, which means they have achieved “depression literacy” as defined by ADAP. These findings were supported through the open-ended responses coaches listed relative to depression symptoms. Additionally, coaches expressed very positive behaviors they would take in response to a student-athlete with depression, such as taking the time to meet one-on-one to talk and encouraging the athletes to seek help.

Another takeaway is the high degree of interest coaches expressed in receiving continuing education. This should be taken seriously by the NCAA and other track and field organizations like USATF and USATFCCA, who should consider developing more opportunities to meet the demand for information coaches demonstrated.

Lastly, the significant difference found between sprints/hurdles coaches and endurance/distance coaches in mean score of depression knowledge should not be ignored. It may represent a need to market the importance of student-athlete wellbeing to sprints and hurdles coaches more so than other event specialties, or it may mean that these coaches have greater barriers to information than other event specialties. Whatever the cause is for the difference, it is

important that they are just as aware of depression as any other coach is, and even more so than coaches of team sports considering the higher prevalence of depression seen in track and field (Wolanin et al., 2016).

Limitations and Recommendations for Future Research

Because this is the first study that has examined coaching awareness of depression, there is opportunity for several follow-up studies. Perhaps the most logical follow-up to this study would be to replicate the study with coaches from other sports. Based on the findings by Wolanin et al., the most rational sports to begin with would be softball or women's soccer, given that the rate of clinically relevant depressive symptoms was higher in these sports than rates found across all sports in prior studies (Proctor & Boan-Lenzo, 2010; Wolanin, Hong, Marks, Panchoo, & Gross, 2016; Yang et al., 2007). A similar follow-up would be to expand the sample to include coaches from Divisions II and III. Another follow-up study would be to test coaches on their knowledge of topics other than depression. Assessing the knowledge coaches have of physiology, nutrition, or sport psychology and asking them about their prior education (certifications, contact with NCAA resources, etc.) would be a great to test the effectiveness of current resources and may highlight areas of deficiency in both coaches' knowledge and current curricula.

Given the difference observed between distance and sprints coaches in their performance on the depression questionnaire, another follow-up study might survey coaches in the different event specialties to see what their attitudes are towards mental health and student-athlete wellbeing. It could also look for other reasons that may explain the difference in performance.

Another follow-up study could ask coaches about their motivations behind seeking or wanting continuing education and any barriers they perceive in receiving it. This would allow further analysis of what socioecological levels are affecting coaches to the greatest degree.

There are also a variety of ways to improve upon the structure of this study. One of this study's limitations is that the depression questionnaire was adapted from a depression questionnaire created to test adolescent's knowledge of depression. Therefore, it may not contain the information most relevant to coaches or the information may be too elementary to be practical for adults. A future study could use a different instrument or develop a questionnaire that tests individuals who work with student-athletes on sport-specific implications of depression.

As mentioned above, it may have been better to offer coaches list of actions they may have taken in response to a student-athlete with depression and ask them to select all actions that they took, rather than only ask them to explain from memory. Similarly, it may be wise to ask coaches to identify symptoms of depression from a list, in addition to having them list as many as they can from memory beforehand. Additionally, it may have been beneficial to ask coaches what barriers they face in pursuing certifications or outside education in the topics that interest them.

The response rate for this survey was about 18%, which means a large part of the population was not included in the results. It may be helpful in future studies to survey coaches during the summer, when both track and field and cross country are out of season and coaches may have more time at their disposal. If the resources were available, offering a small incentive is another potential way to improve the response rate.

APPENDIX

COPY OF SURVEY (WITH CORRECT ANSWERS PROVIDED)

This is a research study whose objective is to assess Division I cross country and track and field coaches' understanding of depression and interest in receiving continuing education. Participation is limited to this electronic survey. The survey will require approximately five minutes of your time. Participation is voluntary. By choosing to participate in the survey, you are giving consent. All responses will remain anonymous; your name will never be associated with your data. You may skip any question or discontinue the survey at any time. There are no anticipated risks to participation. We are happy to share the study's results with you upon conclusion of the data analysis if you indicate interest at the conclusion of the survey.

If you have any questions, you may contact me by email at ehegarty@live.unc.edu. Further, you may also contact the UNC Institutional Review Board by phone (919-966-3113) or email (subjects@unc.edu) if you have questions or concerns about your rights as a research subject referencing study #17-0299.

Study Title: "NCAA Division I Cross Country and Track and Field Coaches' Knowledge of Depression and Attitudes Toward Continuing Education."

Principal Investigator: Erin Hegarty, M.A. candidate, University of North Carolina at Chapel Hill

IRB Number: #17-0299

Please click the blue button below to begin the survey.

1. At what levels have you participated in cross country and/or track and field as a competitor?
(Please check all that apply)
 - a. High school
 - b. College
 - c. Professional level
 - d. Did not participate
2. What is your current coaching title?
 - a. Assistant Coach
 - b. Associate Head Coach
 - c. Head Coach
 - d. Other (fill in the blank)
3. Not including the 2016-17 school year, how many years of coaching experience do you have at the...
 - a. High school level?
 - b. College level?
 - c. Youth
 - d. Other
4. What training or education have you had regarding depression? Please check all that apply.

- a. None
 - b. Lectures
 - c. Printed materials
 - d. NCAA website
 - e. Other websites
 - f. Conversation with mental health expert
 - g. Videos or television shows
 - h. Other - Please describe.
5. How well do you feel you understand depression (i.e. known symptoms, consequences, resources, etc.)?
- a. Not at all
 - b. Slightly
 - c. Moderately well
 - d. Very well
6. Approximately, what percentage of your student-athletes have you known to have struggled with depression while you were still their coach? Your best guess is fine. Enter 0 if none.
7. How did you become aware of a current student-athlete's problem with depression most often?
- a. Student-athlete self-reported
 - b. By identifying the symptoms
 - c. Was told by teammate or athletic trainer
 - d. Other
8. Think of the most recent time you became aware that a student-athlete you were currently coaching was suffering from depression.
- a. How did you respond to the situation?
9. Major Depression is a treatable medical illness. (True)
10. Major Depression is a curable medical illness. (False)
11. A person with depression always feels sad. (False)
12. Depression runs in some families. (True)
13. Depression can be controlled through willpower. (False)
14. The prevalence of depression is equal among men and women. (False)
15. A change in behavior is a symptom of depression. (True)
16. Abuse of drugs and alcohol can be a sign of depression. (True)
17. As many as 1 in 4 collegiate student-athletes suffers from depression during college. (True)
18. Injury increases a student-athlete's risk of depression. (True)
19. Depression increases a student-athlete's risk of injury. (True)

20. Student-athletes are less likely than their non-athlete peers to seek help for depression. (True)

21. List 5 symptoms of Depression.

22. What is your interest level in receiving continuing education in the following areas?

- a. Injury prevention
- b. Nutrition
- c. Strength and Conditioning
- d. Legal Considerations of Coaching
- e. Business/Fundraising/Entrepreneurship for athletic programs
- f. Sports Psychology
- g. Mental Health
- h. Other – please specify

23. What method would you most prefer for receiving this information?

- a. Video modules
- b. Face to face instruction
- c. Printed manual/book
- d. Electronic manual/book
- e. Other – please specify

24. What would be your second most preferred method for receiving this information?

25. Which of the following describe you? Please check all that apply.

- a. American Indian/Alaskan Native
- b. Asian
- c. Black, Non-Hispanic
- d. Hispanic/Latino
- e. White, Non-Hispanic
- f. Native Hawaiian/Pacific Islander
- g. Other

26. What is your gender?

- a. Male
- b. Female

27. What is the highest level of education you have completed? (box to check)

- a. High School/GED
- b. Some college
- c. Bachelor's degree
- d. Master's degree
- e. Doctoral degree

28. What is your age?

- a. 20-29 years
- b. 30-39 years
- c. 40-49 years
- d. 50-59 years

29. Please indicate whether you currently hold or are currently pursuing each of the following coaching certifications:

- a. USA Track and Field Association (USATF) Level 1
- b. USATF Level 2
- c. USATF Level 3
- d. USTFCCCA Endurance Event Specialist Certification
- e. Other – please specify

30. If you are interested in receiving the results of this study, please provide your email address in the space below.

Thank you so much for your participation in this survey.

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