

ATHLETIC TRAINERS AND PSYCHOLOGICAL DISORDERS AMONG ATHLETES:  
AN EXAMINATION OF THEIR ABILITIES TO RECOGNIZE,  
DIAGNOSE AND INTERVENE

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Utilizing an analogue research design conducted via the Internet, this study assessed athletic trainers' abilities to recognize, diagnose, and intervene with a hypothetical athlete experiencing depression, and examined the impact of their gender, athlete gender, and athlete's presenting problem on their decisions. Athletic trainers' perceived competency in using psychosocial interventions with athletes, history of referring athletes to psychology professionals, and training backgrounds in psychology also were examined.

Participants (270 male and 370 female certified athletic trainers) were randomly assigned to one of six conditions (Athlete Gender X Presenting Problem). After reading the appropriate vignette, they completed questions related to the athlete's psychological symptoms and diagnosis, referral recommendations, and use of psychosocial interventions if working with the athlete. The vignettes were identical except for the athlete's gender and problem.

Overall, athletic trainers accurately identified the athlete's depressive symptoms/diagnosis and need for psychological referral. They rated the athlete significantly higher in Depressive Symptoms than in Anger/Agitation Symptoms and Compulsive Behavioral Symptoms, and as more likely to be experiencing a depressive disorder compared to an adjustment disorder, anxiety disorder, sleep disorder, or substance abuse disorder. Female athletic trainers provided significantly higher ratings of Depressive Symptoms than

males and the injured athlete was rated significantly higher in Anger/Agitation than the performance problem athlete. Diagnosis ratings were not influenced by athlete gender, athletic trainer gender, or type of problem.

Athletic trainers were most likely to refer the athlete to a psychology professional compared to an allied health professional, treating the athlete themselves, or doing nothing. Presenting problem significantly impacted referral recommendations. If treating the athlete themselves, athletic trainers were significantly more likely to use supportive interventions than cognitive-behavioral techniques; they felt significantly more competent in providing supportive interventions. Competency in both interventions was significantly enhanced if athletic trainers completed psychology coursework. Findings suggest that athletic trainers are able to accurately identify and intervene with athletes experiencing psychological problems.

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## CHAPTER 1

### INTRODUCTION

Sports involvement in the United States has increased dramatically during the past three decades. For example, girls' and women's sports involvement increased from one in 27 girls participating in high school sports in 1971 to one in three girls participating in 1994 (Sabo, 1997). These statistics suggest that growing numbers of children and adults have the potential to reap the benefits of sports involvement, such as enhanced physical fitness and psychological well-being. With the increased participation in recreational, high school, and collegiate sports, however, sport injuries have become a pervasive public health problem (Caine, Caine, & Lindner, 1996) that affect not only athletes' physical health, but their mental health as well (for a review, see Brewer, 2001). In the United States, it has been estimated that 3 to 5 million injuries occur in sport and recreation each year (Kraus & Conroy, 1984). Given this public health problem, in addition to the rewards associated with sports involvement, many athletes are experiencing the physical and psychological tolls associated with being sports performers.

Sports medicine has traditionally focused on the identification of physical factors that enhance the sport injury rehabilitation and recovery process, but during the last three decades, increasing attention has been given to the role of psychological factors in sport injury rehabilitation (Brewer, 2001). Contributing to this attention are models of sport injury rehabilitation and recovery that incorporate biological, psychological, social, and environmental factors. These models have generated a substantial amount of

empirical research that has indicated that athletes respond to their injuries in cognitive, emotional, and behavioral ways, and that these responses both influence, and are influenced by, biological, social, and environmental factors.

When athletes become injured, sports medicine practitioners (e.g., athletic trainers, physical therapists, sports medicine physicians) and the rehabilitation environment play a significant role in their recoveries. For athletes with mild to moderately severe injuries in particular, rehabilitation often occurs in the athletic training room under the direction of an athletic trainer. Recently, it has been suggested that athletic trainers can help athletes recover psychologically, as well as physically, from their injuries for a variety of reasons: (a) athletic trainers' daily contact with athletes during periods of health as well as injury gives them frequent opportunities to get to know athletes on a personal level and recognize when they are having difficulties managing their injuries or everyday concerns (e.g., Gordon, Potter, & Ford, 1998; Henderson & Carroll, 1993; Kolt, 2001; Pedersen, 1986; Ray, Terrell, & Hough, 1999; Singer & Johnson, 1987; Tuffey, 1991; Udry, 1996; Weiss & Troxel, 1986; Wiese & Weiss, 1987; Wiese, Weiss, & Yukelson, 1991; Wiese-Bjornstal & Smith, 1993); (b) some athletes are more willing to seek help from athletic trainers than they are from mental health professionals (Maniar, Curry, Sommers-Flanagan, & Walsh, 2001; Maniar, Perna, Newcomer, Cramer Roh, & Stilger, 1999); and (c) athletic trainers might not have access to mental health professionals that can assist with the psychological aspects of injury (Chung & Gould, 2001; Larson, Starkey, & Zaichkowsky, 1996; Moulton, Molstad, & Turner, 1997). In addition to these reasons, athletic trainers are

expected to be proficient in recognizing psychological distress and in intervening appropriately (e.g., providing psychological or psychiatric referrals) in order to be certified by the National Athletic Trainers' Association (NATA).

Despite these expectations, however, little research has been conducted examining certified athletic trainers' abilities to assess psychological distress and provide appropriate psychological interventions. Thus, the general purpose of this study was to expand the literature base in the area of psychology of sport injury by examining certified athletic trainers' abilities to recognize symptoms of psychological distress in a hypothetical athlete, identify the athlete's presenting problem/diagnosis, and appropriately intervene with the athlete through psychological/psychiatric referral and other counseling/psychosocial interventions. In addition, this study examined whether certified athletic trainers' abilities in these areas were influenced by the gender of the athletic trainer, the gender of the athlete, or the athlete's type of presenting problem.

### Psychological Models of Response to Sport Injury

In the area of psychology of sport injury, two categories of theoretical models, stage models and cognitive appraisal models, have provided the basis for understanding and investigating psychological responses to sport injury. Stage models of psychological response to sport injury have been adapted from research on psychological responses to terminal illness and other forms of grief and loss (Brewer, 2001). Kübler-Ross' stage model of death and dying has been a popular model to apply to the sport injury context, with several researchers (e.g., Lynch, 1988; Pedersen 1986; Rotella, 1985) suggesting that injured athletes pass sequentially through stages of denial, anger,

bargaining, depression, and finally acceptance of their injuries. Although sport injury research has shown that sport injury can elicit reactions consistent with a grief response and that emotional responses to injury tend to become more adaptive over time (Brewer, 2001), the idea that athletes respond to sport injury in predictable, stage-like ways has not been supported empirically (Brewer, 1994).

In contrast to stage models, considerable empirical support has been obtained for cognitive appraisal models, the second major category of models of psychological response to sport injury. These models are based upon stress and coping theories (e.g., the transactional model of stress and coping, Lazarus & Folkman, 1984) and give cognition a central role in determining athletes' emotional and behavioral responses to their injuries (Brewer, 2001). The most widely researched and empirically supported cognitive appraisal model, Wiese-Bjornstal, Smith, Shaffer, and Morrey's (1998) integrated model of response to sport injury, contends that sport injury is a stressor that athletes cognitively appraise and respond to emotionally and behaviorally. In addition, the model suggests that certain preinjury factors found to predispose athletes to sport injury (e.g., history of stressors, personality characteristics, coping resources; for a review, see Williams & Andersen, 1998) and other pre- and post-injury personal (e.g., injury severity, pain tolerance) and situational (e.g., time in competitive season when injury occurred, sports medicine team influences) factors exert their effects on postinjury responses.

### *Cognitive Responses to Sport Injury*

Although researchers have not empirically examined the specified pathways of the Wiese-Bjornstal et al. (1998) model in their entirety, many studies have obtained empirical support for aspects of the model. Qualitative and quantitative studies have demonstrated that many athletes appraise their injuries as stressful (Bianco, Malo, & Orlick, 1999; Brewer & Petrie, 1995; Ford & Gordon, 1999; Gould, Udry, Bridges, & Beck, 1997b; Heniff et al., 1999, Selby, Weinstein, & Bird, 1990), and that athletes generate a variety of other cognitive appraisals and responses to their injuries that influence their emotions and behavior. Prominent cognitive responses include attributions for the cause of one's injury, appraisals of injury stress and coping difficulties, use of cognitive coping strategies, decreases in global and/or physical self-esteem, and at times, perceived benefits associated with being injured (e.g., an opportunity for personal growth, a test of character) (for a review, see Brewer, 2001). In addition, consistent with the Wiese-Bjornstal et al. model, cognitive appraisals, such as negative appraisals of injury stress (Albinson & Petrie, 2003) and coping abilities (Albinson & Petrie, 2003; Daly, Brewer, Van Raalte, Petitpas, & Sklar, 1995), have been related to postinjury emotional disturbance and to behavioral responses such as choice of coping strategies (Albinson & Petrie, 2003).

### *Emotional Responses to Sport Injury*

Emotional reactions to injury have been the most widely investigated aspect of the Wiese-Bjornstal et al. (1998) model. Research has shown that sport injury is associated with emotional disturbance (e.g., Brewer & Petrie, 1995; Chan & Grossman,

1988; Leddy, Lambert, & Ogles, 1994; Pearson & Jones, 1992; Petrie, Brewer, & Buntrock, 1997; Petrie, Falkstein, & Brewer, 1997, Smith et al., 1993) and that negative emotions such as depression, frustration, confusion, anger, and fear are common during the initial phases of rehabilitation (Bianco et al., 1999; Johnston & Carroll, 1998a; Udry, Gould, Bridges, & Beck, 1997). During the middle and final stages of rehabilitation, depression and frustration continue to be prominent as injured athletes deal with rehabilitation-related concerns and their fears about reinjury (Bianco et al., 1999; Johnston & Carroll, 1998a). Emotional disturbance also affects athletes' behavioral responses and recovery from their injuries, with a few studies finding inverse relationships between emotional disturbance and rehabilitation adherence (Daly et al., 1995) and between emotional disturbance and rehabilitation outcome (Brewer et al., 2000; LaMott, 1994).

Heil (1993) commented that the majority of psychological distress experienced by injured athletes is not of sufficient magnitude and duration to approach clinical levels; however, several studies have shown that 5% to 24% of injured athletes experience clinically meaningful levels of emotional disturbance, particularly depression (Brewer, Linder, & Phelps, 1995; Brewer, Petitpas, Van Raalte, Sklar, & Ditmar, 1995; Brewer & Petrie, 1995; Leddy et al., 1994). In some cases, the postinjury emotional disturbance (i.e., depression) has been so severe that athletes have even attempted suicide (Smith & Milliner, 1994). Thus, although most injured athletes experience minimal psychological distress while coping with their injuries, many suffer elevated levels of depression and other debilitating mood states. This fact underscores the

importance for sports medicine practitioners (e.g., athletic trainers, physical therapists, sports medicine physicians) who work with injured athletes to recognize the clinical signs of depression that can accompany injury and to seek appropriate referrals (Wiese-Bjornstal et al., 1998).

### *Behavioral Responses to Sport Injury*

The behavioral responses to injury that have received the greatest empirical attention are adherence to sport injury rehabilitation and coping behaviors. Typically, researchers have measured rehabilitation adherence by assessing patient attendance at clinic-based rehabilitation sessions, practitioner ratings of adherence during rehabilitation sessions, or patient self-reports of home exercise completion (Brewer, 2001). Using these varied approaches, an array of adherence estimates has been reported, with an estimated 40% to 91% of patients in rehabilitation programs adhering to rehabilitation (Brewer, 2001). Consistent with the Wiese-Bjornstal et al. (1998) integrated model, a variety of personal (e.g., pain tolerance, self-motivation) and situational (e.g., social support for rehabilitation, rehabilitation practitioner expectancy of patient adherence) factors have been related to rehabilitation adherence, as well as cognitive and emotional responses (for a review, see Brewer, 2001). Some of the cognitive responses associated with greater rehabilitation adherence include athletes' positive appraisals of their coping abilities (Daly et al., 1995), high self-efficacy for rehabilitation (Taylor & May, 1996), high self-esteem certainty (Lampton, Lambert, & Yost, 1993), and stable, controllable attributions for their recoveries (Laubach, Brewer, Van Raalte, & Petitpas, 1996). The relationship between emotional responses



and rehabilitation adherence has been less well-studied, however, initial research indicates that mood disturbance is inversely related to rehabilitation adherence (Daly et al., 1995).

In addition to rehabilitation adherence, coping behaviors have received recent empirical attention. Qualitative studies with injured skiers have indicated that athletes behaviorally cope by learning about and assessing the extent of their injuries (Bianco et al., 1999; Udry, Gould, Bridges, & Beck, 1997), adopting aggressive rehabilitation approaches and working hard to achieve rehabilitation goals (Bianco et al., 1999; Gould, Udry, Bridges, & Beck, 1997a), trying alternative treatments (Bianco et al., 1999), seeking/using social resources, as well as avoiding others (Gould et al., 1997a), distracting themselves (e.g., keeping busy, seeking a change in scenery) (Gould et al., 1997a), and taking breaks from rehabilitation (Bianco et al., 1999). Quantitative studies (e.g., Quinn & Fallon, 1999; Udry, 1997) have indicated that athletes use active behavioral methods of coping (e.g., instrumental coping, which involves overt behavioral attempts to deal directly with a stressor and its effects) more frequently than other forms of coping (e.g., palliative coping, which involves self-help activities and responses to soothe or alleviate the unpleasantness of injury), and that athletes who negatively appraise their postinjury stress and coping abilities early in the rehabilitation process, are more likely to engage in active behavioral coping later in rehabilitation (Albinson & Petrie, 2003). Since active behavioral coping methods (i.e., instrumental coping) typically involve behaviors such as learning more about the injury or listening to the advice of health care providers (Udry, 1997), athletes seem to have a preference

for coping with postinjury stress by seeking information from sports medicine practitioners (e.g., athletic trainers). This may be due to the fact that during rehabilitation, injured athletes have considerable contact with sports medicine practitioners, such as athletic trainers and physical therapists, and view them as important sources of information and support.

### *Summary of Psychological Reactions to Injury*

It is evident that athletes respond psychologically to their injuries in a variety of ways. Cognitively, they might develop attributions for the causes of their injuries, appraise their injury stress and coping abilities, use cognitive strategies to cope with their injuries, experience decreases in global and/or physical self-esteem, and/or perceive an injury as beneficial to them in some way. These cognitive responses, in turn, can affect them behaviorally, in terms of their adherence to rehabilitation and choice of coping strategies, as well as emotionally, with many athletes experiencing depression, frustration, confusion, anger, and/or fear during various stages of their rehabilitation. These negative emotional responses have been associated with negative appraisals of injury stress and coping abilities, in addition to poor rehabilitation adherence and rehabilitation outcome. Finally, athletes have shown a preference for coping with their injuries in active, behavioral ways, such as by seeking information from sports medicine practitioners. This might be due to their perceptions of sports medicine practitioners as important sources of information and support, given their frequent contact with them during periods of recovery from injury.

## The Influence of Athletic Trainers on Athletes' Psychological Responses to Sport Injury

Given the frequency with which injured athletes and athletic trainers interact, researchers have examined the ways in which athletic trainers influence athletes' responses to their injuries. Recently, a qualitative study by Tracey (2003) demonstrated support for the effects of athletic trainers' verbal and nonverbal communications on athletes' emotional responses to their injuries. In particular, it was the athletic trainers' facial expressions and verbal reactions to the appearance of the athletes' injuries (e.g., reactions to an increase or decrease in swelling of the injured body part) that significantly affected how they felt. The injured athletes commented that their emotional responses often were not determined until they met with the athletic trainer at the rehabilitation session on a particular day.

In addition to influencing athletes' emotional responses to injury, athletic trainers also have been shown to affect athletes' behavioral responses. Several studies (Byerly, Worrell, Gahimer, & Domholdt, 1994; Duda, Smart, & Tappe, 1989; Fisher, Domm, & Wuest, 1988) have indicated that support from others, such as athletic trainers, distinguishes athletes who adhere to their rehabilitation programs from those who do not. Athletes who perceive greater support are more likely to adhere to rehabilitation than athletes who perceive less support. Although sports medicine practitioners have been perceived by injured athletes to predominantly provide informational and technical support (Johnston & Carroll, 1998b; Udry, Gould, Bridges, & Tuffey, 1997), researchers have underscored the benefits injured athletes could experience by receiving emotional support and assistance with managing psychological distress from sports medicine

practitioners such as athletic trainers (Albinson & Petrie, 2003; Ford & Gordon, 1993; Hardy & Crace, 1993; Udry, 1996). This could be particularly important in light of the fact that athletic trainers observe injured athletes experiencing coping difficulties on a regular basis. For example, Ford and Gordon (1997) and Ford and Gordon (1998) reported that physiotherapists (i.e., practitioners employed in Australia and New Zealand with similar roles as athletic trainers) frequently observed emotions such as anxiety and frustration among injured athletes and that these emotions significantly hindered recovery. In addition, the physiotherapists identified behavioral problems such as noncompliance with the rehabilitation program as having a particularly negative effect on rehabilitation and recovery. Larson et al. (1996) obtained similar results with athletic trainers, who reported that stress, anxiety, anger, depression, and treatment compliance problems were the most frequently encountered conditions among athletes with injuries. Finally, in a variety of studies (Francis, Andersen, & Maley, 2000; Larson et al., 1996; Ninedek & Kolt, 2000; Wiese et al., 1991), athletic trainers and physiotherapists have consistently distinguished athletes who cope most versus least successfully with their injuries on the basis of characteristics such as willingness to listen to the athletic trainer, positive attitude, intrinsic motivation, willingness to learn about the injury and rehabilitation techniques, determination/mental toughness, high self-esteem/confidence, use of goal setting, and emotional maturity. These data suggest that athletic trainers encounter injured athletes experiencing coping difficulties with some frequency, and that they have the potential to positively impact athletes' adjustment to injury with additional support.

## The Role of Athletic Trainers in Treating Psychological Aspects of Sport Injury

### *Reasons for Athletic Trainers to Intervene Psychologically*

Due to their frequent contact with both injured and uninjured athletes, many researchers believe that athletic trainers and other sports medicine practitioners (e.g., physical therapists) are in an ideal position to address psychological aspects of injury and have advocated for them to provide basic counseling, and cognitive and behavioral interventions shown to enhance the injury recovery process (e.g., goal setting, positive self-talk, motivation techniques) (DePalma & DePalma, 1989; Ford & Gordon, 1993; Gordon et al., 1998; Hardy & Crace, 1999; Henderson & Carroll, 1993; Kolt, 2001; Pedersen, 1986; Ray et al., 1999; Shaffer & Wiese-Bjornstal, 1999; Singer & Johnson, 1987; Tuffey, 1991; Udry, 1996; Weiss & Troxel, 1986; Wiese & Weiss, 1987; Wiese et al., 1991; Wiese-Bjornstal & Smith, 1993). Athletic trainers' primary roles include the prevention, evaluation, and treatment of sports injuries, in addition to organizational and administrative duties and professional responsibilities (National Athletic Trainers' Association Board of Certification, 1999). Furthermore, their job-related responsibilities require frequent contact and communication with other important people in athletes' lives, such as their coaches and team physicians. Given these roles and responsibilities, athletic trainers have considerable contact with both injured and uninjured athletes, as well as with the people who support them. Although athletic trainers primarily deal with athletes on a physical level (e.g., taping ankles, prescribing rehabilitative activities such as icing and stretching), they have frequent opportunities to get to know athletes on a personal level. Weiss and Troxel (1986) suggested that one of the critically important

roles of the athletic trainer is to get to know athletes' individual qualities (e.g., self-esteem, trait anxiety) because most athletic trainers have unique opportunities for daily contact with athletes during periods of health as well as injury. Furthermore, this frequent contact enables athletic trainers to develop rapport with athletes that can assist them in understanding each athlete's psychological make-up and in intervening appropriately when athletes' responses to injury or other life problems are maladaptive (Gordon et al., 1998; Henderson & Carroll, 1993). Researchers have indicated that athletic trainers should screen for more serious psychological problems, provide appropriate referrals to mental health practitioners, and/or possibly work in conjunction with mental health practitioners when necessitated by the athlete's presenting concerns and level of psychological distress (Henderson & Carroll, 1993; Ray et al., 1999; Singer & Johnson, 1987; Wiese & Weiss, 1987; Wiese et al., 1991; Wiese-Bjornstal & Smith, 1999).

Athletic trainers and other sports medicine practitioners also have been encouraged to provide basic counseling and psychological interventions because research has shown that athletes are more willing to seek help from them than from sport psychology consultants or clinical psychologists (Maniar et al., 1999; Maniar et al., 2001). According to some reports, athletes experience greater psychological distress than nonathletes, but are less likely to seek professional counseling services (Carmen, Zerman, & Blaine, 1968; Pinkerton, Hinz, & Barrow, 1989). When faced with athletic injury, college athletes have reported a greater willingness to seek help from friends and coaches than from physicians, athletic trainers, and sport psychologists, who were

in turn favored over counselors and psychologists (Maniar et al., 2001). Similarly, another study found that injured athletes were significantly more willing to seek help from athletic trainers for performance problems following a season-ending injury than from sport performance enhancement specialists, psychologists, counselors, and clinical psychologists (Maniar et al., 1999). It is possible that some athletes view help-seeking as a sign of weakness and thus, would rather suffer the consequences of a difficult rehabilitation than request formal psychological assistance (Kolt, 2000). Athletes also might be reluctant to seek the help of a counselor or psychotherapist because they, particularly males, fear being stigmatized as a "mental patient" (Van Raalte, Brewer, Brewer, & Linder, 1992). Research has shown that male athletes are more likely than female athletes to believe that they would be stigmatized if they consulted with a sport psychology consultant (Martin, Wrisberg, Beitel, & Lounsbury, 1997). Research also has indicated that males are more likely than females to derogate a male athlete who consults a psychology professional. Linder, Brewer, Van Raalte, and DeLange (1991) asked male and female college students to provide draft recommendations for a hypothetical male athlete who consulted either a coach, sport psychologist, or psychotherapist to improve his playing consistency. The male participants provided significantly lower draft ratings than the female participants for the male athlete who consulted the sport psychologist or psychotherapist, indicating a derogation effect for the athlete who consulted a psychology professional for a performance-related issue. In addition to having less positive perceptions about working with psychology professionals, males also have rated psychological interventions for sport injury

rehabilitation (i.e., goal setting, imagery, and counseling) less positively than females (Brewer, Jeffers, Petitpas, & Van Raalte, 1994). In general, the results of these studies suggest that males might have less positive perceptions of psychological interventions used during injury rehabilitation (e.g., psychological techniques, psychological referrals). As a result, male athletes might be less willing to seek or use the help of psychology professionals during rehabilitation, and male athletic trainers might be less willing to implement psychological interventions with male athletes or refer them for psychological care.

In addition to athletic trainers' frequent contact with athletes and athletes' reticence to seek help from mental health professionals, another reason for encouraging athletic trainers to provide basic psychological interventions is due to athletic trainers' reports that they do not have a sport psychologist or other mental health professional available to them to assist with the psychological aspects of injury (Chung & Gould, 2001; Larson et al., 1996; Moulton et al., 1997). Larson et al. (1996) reported that only 25% of the athletic trainers they surveyed had a sport psychologist available to them as a member of their sports medicine team. An even more dismal percentage was reported by Chung and Gould (2001), who found that only 16% of the athletic trainers in their investigation had personnel (e.g., sport psychologist, mental training consultant, or counselor) available to help their athletes psychologically. Moulton et al. (1997) found that although a small sample of athletic trainers employed in a university setting were aware of on-campus student support services to assist athletes with personal issues, none of the athletic trainers reported having a sport psychologist available within their



referral network. These data highlight the importance of certified athletic trainers acquiring adequate training in recognizing and evaluating psychological features associated with response to sport injury (Cramer Roh & Perna, 2000). Furthermore, they suggest that sport psychologists could do a better job of marketing their services to athletic trainers and that athletic trainers could do a better job of developing their referral networks. In support of the latter idea, Larson et al. (1996) reported that only 8% of the 482 certified athletic trainers they surveyed had a standard written procedure for referring athletes for counseling services.

#### *Recommended Psychological Interventions to be Employed by Athletic Trainers*

The national governing body in the United States responsible for certifying athletic trainers, the National Athletic Trainers' Association (NATA), supports athletic trainers in providing basic counseling and psychological interventions. To become a certified athletic trainer (ATC), the athletic trainer is expected to possess certain "Athletic Training Educational Competencies" (NATA, 1999; as cited in Kolt, 2000). One specific competency relates to psychosocial intervention and referral. Within this competency, athletic trainers should be able to understand and perform a variety of psychosocial interventions such as: (a) describe the basic signs and symptoms of mental disorders (e.g., psychoses), emotional disorders (e.g., depression), or personal/social conflict (e.g., family problems, academic or emotional stress), and provide appropriate referrals; (b) describe the accepted protocols that govern the referral of athletes and other physically active individuals to psychological, community health, or social services; (c) employ basic principles of counseling, including discussion,

active listening, and resolution; and (d) implement motivational, stress reduction, and mental imagery techniques for athletes and others involved in physical activity. It is apparent from these established competencies that athletic trainers are expected to be quite sophisticated in recognizing psychological disturbances, providing psychological interventions, and facilitating mental health referrals (Kolt, 2000).

Athletic trainers seem to share the NATA's view that treating psychological aspects of sport injury is important and that they can play a critical role in providing psychological interventions. In Larson et al.'s (1996) investigation, 90% of the certified athletic trainers they surveyed reported that it is important to treat psychological aspects of sport injury. According to Weiss and Troxel (1986), athletic trainers have commented that the physical treatment of injuries is the most important responsibility of the athletic trainer, but that athletic trainers are also accountable for the mental factors affecting rehabilitation. In their work with injured athletes, athletic trainers have reported that they use skills and techniques such as goal setting, keeping the athlete involved with the team, creating variety in rehabilitation exercises, and encouraging positive self-thoughts and effective communication skills (Larson et al., 1996). Furthermore, in several studies (Francis et al., 2000; Larson et al., 1996; Ninedek & Kolt, 2000; Wiese et al., 1991), athletic trainers and physiotherapists have identified strategies they believe are important for them to learn, such as using a positive and sincere communication style, setting realistic goals, encouraging positive self-thoughts, understanding individual motivation, enhancing self-confidence, understanding stress/anxiety, and reducing depression. On the other hand, athletic trainers and

physiotherapists have rated strategies such as enhancing listening skills, and teaching concentration skills, muscular relaxation techniques, emotional control strategies, and mental imagery as less important to have knowledge about (Francis et al., 2000; Larson et al., 1996; Ninedek & Kolt, 2000; Wiese-Bjornstal et al., 1991). These findings are particularly interesting given the NATA's specific requirements that certified athletic trainers be competent in providing interventions such as stress reduction techniques and mental imagery.

#### *Athletic Trainers' Competency to Treat Athletes Psychologically*

Despite the NATA's expectations that athletic trainers are competent to identify basic signs and symptoms of mental and emotional disorders, facilitate appropriate referrals, and provide basic psychological interventions, how well they meet these competencies is questionable (Cramer Roh & Perna, 2000; Kolt, 2000). Little research has been conducted to determine athletic trainers' capabilities in these areas. Initial research has indicated that sports medicine practitioners have difficulty identifying psychological distress in their patients (Brewer, Petitpas, et al., 1995; Maniar et al., 1999). Brewer, Petitpas, et al. (1995) surveyed injured patients at a physical therapy clinic and the physical therapists or athletic trainers responsible for treating them. Patients completed the Brief Symptom Inventory (BSI; Derogatis, 1992), a measure of psychological distress, and from a list of behaviors signifying poor psychological response to athletic injury, the physical therapists/athletic trainers reported what they had observed in their patients. In addition to comparing patients' and practitioners' perceptions of psychological distress, Brewer, Petitpas, et al. also compared their

perceptions of the patients' physical progress in rehabilitation. Although they obtained a significant correlation between patients' and practitioners' ratings of rehabilitation progress, they obtained a nonsignificant correlation between the psychological distress scale and the practitioners' behavioral observations. Based on these findings, Brewer, Petitpas, et al. concluded that although patients and practitioners similarly appraise the patient's physical state, their views of the patient's psychological state are divergent. As a result, practitioners appear to have difficulty identifying clinically meaningful emotional disturbance in a patient.

Maniar et al. (1999) also found that athletic trainers have difficulty identifying psychological distress. In their study, injured athletes completed two self-report measures assessing depression and general mood state, and a structured interview for depression. Athletic trainers responded to the question, "How difficult has it been for this athlete to cope with their injury?" on a 7-pt. Likert scale anchored by *not at all difficult* and *very difficult*. Maniar et al. suggested two reasons for why the athletic trainers were unable to accurately assess the athletes' distress (i.e., depression), as indicated by the nonsignificant correlation between athletic trainer-assessed and athlete self-reported distress. First, the athletes may not have exhibited their distress in the training room because they did not feel comfortable doing so. On the other hand, athletic trainers may not have asked about the athletes' emotional disturbance, perhaps because they had little knowledge about how to assess depression and/or lacked adequate diagnostic tools to assess emotional disturbance. In either instance,

information that would have been needed to make an accurate diagnosis was not communicated or made available between the athletes and athletic trainers.

Initial research also has indicated that athletic trainers may not be intervening appropriately (e.g., providing appropriate psychological or psychiatric referrals) when faced with athletes experiencing significant psychological distress. Ermler and Thomas (1990) stated that an athlete should be referred for counseling when it becomes apparent to the athletic trainer that he or she is having difficulty dealing with either the injury or everyday concerns, problems, and activities. According to Brewer, Petitpas, and Van Raalte (1999), if an injured athlete displays symptoms of anxiety, depression, disordered eating, substance abuse, or other patterns of disordered behavior, a referral to a mental health professional is clearly indicated. Despite these recommendations, initial research has indicated that many athletic trainers are not referring athletes for assistance with these types of issues. Larson et al. (1996) reported that nearly three-fourths (71%) of nationally surveyed certified athletic trainers encountered stress and anxiety among injured athletes and more than half (53%) of the sample noted that athletes experienced significant levels of emotional distress and treatment compliance problems. Only one-fourth (24%) of the athletic trainers surveyed, however, had ever referred an athlete for counseling as a result of their injury. In contrast to the low referral rate (24%) found by Larson et al. (1996), however, Moulton et al. found that 71% of the certified athletic trainers in their study referred 1-6 athletes to on-campus student support services during an academic semester. Although these referral rates appear discrepant, it is difficult to compare the data from these two studies because

there were considerable differences in the samples surveyed. Moulton et al.'s sample was limited to only 14 male and female athletic trainers within a NCAA Division I Southern conference, and Larson et al.'s sample included 482 athletic trainers employed in a variety of settings throughout the nation. Besides the obvious difference in the number of athletic trainers surveyed, the discrepant referral rate might have occurred because, unlike Moulton et al.'s sample of university athletic trainers, Larson et al.'s sample included athletic trainers employed at sites where on-site counseling services might not have been conveniently available. Athletic trainers employed in settings without on-site counseling services may need to invest greater effort in developing their referral networks. Nonetheless, the discrepant referral rate data suggest that more research is needed in this area.

Based upon the referral rate data obtained by Larson et al. (1996) and Moulton et al. (1997), Cramer Roh and Perna (2000) concluded that significant numbers of injured athletes with pronounced psychological distress are not referred for counseling. Although it is possible that athletic trainers are providing counseling to distressed athletes themselves, as had been suggested by Moulton et al., the survey data suggested that certified athletic trainers believe they are not adequately trained in counseling techniques (Cramer Roh & Perna, 2000). Most of the athletic trainers (85%) in Larson et al.'s study believed that a course in sport psychology was a *relatively important* or *very important* part of their education, yet only half (54%) of the athletic trainers had taken a formal sport psychology course. In Moulton et al.'s study, only 36% of the athletic trainers reported that they received adequate training in basic

counseling skills, and 79% expressed a need for continuing education on counseling issues. Only one (7%) athletic trainer reported having counseling courses included in the curriculum as part of his or her athletic training program. Furthermore, although most (79%) athletic trainers reported that student athletic trainers at their facilities were given instructions regarding the management of confidential issues of athletes, less than one-fourth (21%) of the athletic trainers reported monitoring student athletic trainers while they counseled athletes. In addition, only four (29%) training programs conducted in-service programs addressing the emotional or psychological issues student athletic trainers might face in their work with injured athletes. These data are particularly alarming given that the majority of athletic trainers (79%) reported that athletes disclosed personal counseling issues as well as problems related to a specific injury. Most athletic trainers (71%) felt satisfied with their experience in the counselor role and viewed counseling athletes on personal issues as a requirement of their position (79%), but the majority (86%) indicated that they preferred counseling athletes experiencing injury-related problems over personal issues.

If athletic trainers are not properly trained to identify the psychological signs and symptoms associated with poor adjustment to sport injury, they are less likely to refer athletes to mental health professionals. According to Cramer Roh and Perna (2000), the evidence is minimal that certified athletic trainers routinely complete a specific course in psychopathology or the psychology of injury. Only an introduction to psychology course is required before sitting for the NATA's certification examination (Misasi, Davis, Morin, & Stockman, 1996) and an introductory psychology course contains neither a thorough

review of psychopathology nor training in counseling and interviewing techniques (Cramer Roh & Perna, 2000). Clearly, athletic trainers could benefit from additional instruction in psychology and counseling. Although it is not advocated that athletic trainers acquire further instruction so as to gain skills in providing psychotherapy to athletes, it is suggested that further instruction could help them learn the basic counseling skills (e.g., active listening, emotional support) and psychological interventions (e.g., goal setting, relaxation training) that can provide therapeutic benefits (Cramer Roh & Perna, 2000). Furthermore, with increased knowledge of counseling and psychology, athletic trainers may be more effective in identifying their boundaries of competence, making referrals to mental health professionals, and working as part of an interdisciplinary team to facilitate athletes' physical and psychological recovery from injury (Cramer Roh & Perna, 2000).

#### Purpose of Present Study

Athletic trainers play a primary role in facilitating athletes' psychological adjustment to sport injury. They are responsible for providing basic counseling and psychological interventions to athletes experiencing minimal to moderate psychological distress, as well as for screening for more serious psychological problems and providing appropriate referrals. Next to coaches, they are the sport professional with the greatest opportunities for daily contact with athletes. Not only do they spend considerable time interacting with athletes during periods of injury rehabilitation, they spend considerable time with athletes during periods of physical health. Athletes often spend time in the athletic training room before and after practice or competition being taped, iced, and



stretched by their athletic trainers in order to maintain their physical health.

Furthermore, athletic trainers attend practices and competitions to provide immediate care of injuries. These many contacts give athletic trainers unique opportunities to get to know athletes well and develop strong rapport and working relationships.

Although it has been suggested that athletic trainers are in an ideal position to provide psychological care to athletes and that they should be competent in doing so, very little research has been conducted to determine whether they meet basic competencies such as recognizing psychological distress, providing psychological interventions, and facilitating referrals to mental health professionals. Only two studies (Brewer, Petitpas, et al., 1995; Maniar et al., 1999) have assessed athletic trainers' abilities to recognize psychological distress by comparing athlete self-reports of mood state and other psychological symptoms with athletic trainers' observations of their behaviors during rehabilitation. No studies have examined athletic trainers' abilities to select specific psychological strategies or techniques to be used with distressed athletes based upon their direct observation of an athlete's psychological distress. Furthermore, no studies have examined athletic trainers' abilities to identify athletes who may be in need of psychological or psychiatric referral. Rather, the few studies conducted in the area of psychological intervention and referral (e.g., Larson et al., 1996; Moulton et al., 1997; Wiese et al., 1991) have utilized a survey format where athletic trainers were asked to report their perceptions of important psychological techniques for facilitating rehabilitation and to retrospectively report their referral practices.

Thus, the primary purpose of this study was to expand the literature base in the area of psychology of sport injury by assessing certified athletic trainers' abilities to recognize, diagnose, and intervene (e.g., provide psychological/psychiatric referrals, select appropriate psychosocial strategies/techniques) with athletes experiencing psychological distress. In addition, this study examined whether certified athletic trainers' abilities in these areas are influenced by the gender of the athletic trainer, the gender of the athlete, or the athlete's type of presenting problem. Using an analogue research design conducted via the Internet, certified athletic trainers were asked to identify symptoms associated with moderately severe major depressive disorder (American Psychiatric Association, 1994), identify an athlete's primary problem/diagnosis, determine whether an athlete should be referred for psychological and/or psychiatric treatment, and/or select appropriate counseling/psychosocial strategies and techniques to be used with an athlete, based upon their reading of a detailed vignette depicting either a male or female athlete having difficulties coping with a particular problem (i.e., sport injury, sport performance, or romantic relationship problem). In addition, the athletic trainers rated their level of competency in using specific psychosocial interventions with athletes and provided information about their past referral histories and training backgrounds in sport and general psychology. The primary research questions investigated whether the gender of the certified athletic trainer, the gender of the athlete, or the athlete's type of presenting problem influenced the athletic trainers' perceptions of (a) the presence and severity of the athlete's symptoms, (b) the psychological diagnosis of the athlete, (c) the necessity of referring

the athlete to a mental health professional, and (d) the types of psychosocial interventions that would be helpful to the athlete if they chose to work with them on their own.

Given the exploratory nature of this study, only a few hypotheses were forwarded. Based upon past research indicating that males have less positive perceptions of working with sport psychologists and other mental health professionals than females (e.g., Brewer et al., 1994; Linder et al., 1991), it was hypothesized that male athletic trainers would be less likely than female athletic trainers to refer the male athlete to a sport psychology consultant, counselor/psychologist, or psychiatrist. Male athletic trainers would be more likely than female athletic trainers to treat the male athlete themselves. With regard to types of presenting problems, it was expected that athletic trainers would be most likely to refer the male and female athlete in the romantic relationship vignette to a mental health professional, given that this problem is more personal in nature. It was hypothesized that they would be most likely to treat the male and female athlete experiencing injury complications themselves.

## CHAPTER 2

### METHOD

#### Participants

Participation was solicited from 1800 male and 1800 female certified athletic trainers randomly selected from the 2005 membership database of the National Athletic Trainers' Association. Of the 3600 potential participants contacted via e-mail, 94 e-mails were returned due to incorrect addresses or spam-blocking features of the participants' e-mail programs, resulting in a total of 3506 athletic trainers being solicited for the study. Of the 3506 athletic trainers, 726 completed the online survey, resulting in a 20.7% response rate. Based upon a priori power analyses calculated for an analysis of variance (ANOVA) test with an effect size of 0.25 (Cohen's  $d$ ), alpha level of .01, and power level of .95, it was determined that 28 participants were needed for each of the 12 experimental cells (336 participants total), and this requirement was met despite the low response rate. Of the 726 participants (307 male and 403 female; 16 did not provide information about their gender) who completed the online survey, 640 (270 males and 370 females) provided complete data necessary to answer the research questions (i.e., provided information regarding their gender, and the symptoms, diagnosis, and referral ratings). Athletic trainers' mean age was 34.1 years ( $SD = 8.9$ ); 605 (94.5%) identified themselves as White, non-Hispanic, 4 (0.6%) as Black, non-Hispanic, 13 (2.0%) as Hispanic, 9 (1.4%) as Asian American, and 5 (0.8%) as "other," with 4 (0.6%) not providing information about their race/ethnicity. The majority of the participants earned master's degrees (i.e., MA/MS/MEd) as their highest degrees

(66.1%), with 28.1% earning bachelor degrees, 2.5% earning doctoral degrees (i.e., PhD/PsyD/EdD), 0.2% earning MD degrees, and 2.3% earning "other" degrees (e.g., MPT, DPT). Approximately half (46.1%) of the participants earned their degrees within the past 5 years, with 23.4% earning their degrees 6-10 years ago, 11.7% earning their degrees 11-15 years ago, 8.1% earning their degrees 16-20 years ago, and 9.5% earning their degrees more than 20 years ago. Most participants earned their degrees in athletic training (33.9%), but a variety of other degrees were represented as well, including "other" (e.g., human performance, sports medicine; 19.5%), physical education (12.7%), education (11.4%), exercise science (10.2%), kinesiology (7.8%), and physical therapy (4.2%). Most participants ranked "athletic trainer" as their current occupation, with 72.8% identifying it as their primary occupation and 17.8% identifying it as their secondary occupation. Nearly all participants reported being certified by the NATA (99.7%), and 76.4% and 24.5% indicated that they held a state or other license, respectively. As athletic trainers, most worked in either a 4-yr college/university (31.6%) or public high school (30.2%) setting, with others working in "other" settings (e.g., splitting time between a clinic and high school setting, working at an industrial clinic; 9.8%), sports medicine clinics (8.8%), private high schools (6.7%), community colleges (3.8%), amateur or professional sports organizations (3.4%), private practices (2.5%), and hospitals (2.3%). Most athletic trainers worked with multiple or all sports teams offered at their institutions (31.4%), with others working primarily with the football team (25.9%), "other" teams (e.g., hockey, lacrosse; 12.5%), the basketball team (11.9%), the soccer team (4.1%), the baseball team (2.3%), the volleyball team

(1.7%), the cross country/track teams (1.4%), or the softball team (1.3%). A small percentage (<1%) worked primarily with other teams such as wrestling, gymnastics, swimming and diving, ski, tennis, golf, and crew teams. Due to incomplete data provided by a limited number of participants, the aforementioned frequencies might not sum to exactly 100%.

This sample of athletic trainers appeared representative of the membership of the NATA. According to information published on the NATA's Website, 87% of certified members were Caucasian, 3% Asian or Pacific Islander, 2% Black, non-Hispanic, 2% Hispanic, 1% "other" and 5% unspecified. With regard to work settings, 20% of certified members worked at a university/college, 18% at a clinic, 17% at a high school, 9% at a high school/clinic, 8% as an "other professional," and less than 5% each at a variety of settings (e.g., hospital, junior college). With regard to gender, however, the athletic trainers responding to the survey were less representative of the NATA membership, as 53% of the members were male and 47% female, whereas in this study, 42.2% were male and 57.8% were female.

## Measures

### *Demographic Questionnaire*

The demographic questionnaire (see Appendix A) was used to obtain information about the athletic trainers in a variety of areas, including: basic background information (e.g., age, race/ethnicity), education and training in sport and general psychology, past referral practices, perceptions of certified athletic trainers' roles, and feelings of competency in using psychosocial interventions with athletes.

*Background information.* Participants provided information about their sex, age, race/ethnicity, highest academic degrees earned, current certifications or licenses held, current occupation(s) (e.g., athletic trainer, high school teacher), sport teams worked with, and employment setting as an athletic trainer (e.g., high school, 4-yr college/university).

*Education and training in sport and general psychology.* Using a “yes/no” format, participants responded to questions about their academic and professional training backgrounds in sport and general psychology, including coursework, supervised practica, and continuing education completed.

*Referral practices.* Participants indicated whether counselors/psychologists, psychiatrists, and sport psychology consultants were accessible to them through their work as athletic trainers, and provided information about their past referral practices. Specifically, participants were asked whether they had ever referred an athlete to a counselor/psychologist, psychiatrist, and sport psychology consultant and their reasons for doing so, and rated the perceived helpfulness of each mental health professional in treating the referred athletes, on 5-point Likert scales ranging from 1, *not at all helpful* to 5, *extremely helpful*. Participants who indicated that they had never referred an athlete to these professionals were asked to provide some of the reasons why. A counselor/psychologist was defined as “a professional who provides counseling or psychotherapy to individuals experiencing psychological disorders and other cognitive, behavioral, emotional, and social concerns”; a psychiatrist defined as, “a professional who evaluates and treats individuals with mental and emotional disorders, primarily

with medication”; and a sport psychology consultant defined as “a professional who educates others about the role of psychological factors in exercise, physical activity and sport, and teaches them specific cognitive, behavioral, emotional, and psychosocial skills to use in these contexts.”

*Perceived roles of certified athletic trainers.* On a 5-point Likert scale ranging from 1, *strongly disagree* to 5, *strongly agree*, participants rated their agreement with four statements about the roles of athletic trainers in: (a) using psychosocial techniques in rehabilitation, (b) facilitating psychological referrals, (c) providing counseling to athletes for personal issues, and (d) administering therapeutic treatments to facilitate physical recovery from injury.

*Perceived competency in using psychosocial interventions.* Participants rated their level of competence in teaching/using a variety of psychosocial interventions with athletes on a 5-point Likert scale ranging from 1, *not at all competent* to 5, *extremely competent*.

### *Symptom Ratings*

Participants rated the presence of 20 cognitive, affective, behavioral, and physical symptoms in a male or female athlete depicted in a vignette (see Appendix B). The list of symptoms was created such that some of the symptoms were fairly explicitly depicted in the vignette (e.g., “fatigue,” “social isolation”), whereas others were more ambiguous (e.g., “suicidal thinking,” “hopelessness”), and others were not indicated at all (e.g., “perceptual disturbances,” “eating disturbance”). Participants answered the



question, "To what extent are the following symptoms present for Mike (Michelle)?" on a 5-point Likert scale ranging from 1, *not at all* to 5, *extremely*.

#### *Problem Ratings*

Serving as a manipulation check, each participant was asked to rate, on a 5-point Likert scale ranging from 1, *not at all* to 5, *extremely*, the extent to which the athlete experienced each of the problems comprising the experimental conditions following his/her reading of his/her randomly assigned vignette (see Appendix C). These items included, "Mike (Michelle) is experiencing romantic relationship problems," "Mike (Michelle) is experiencing difficulties with injury rehabilitation," and "Mike (Michelle) is having sport performance problems."

#### *Diagnosis Ratings*

To indicate their psychological diagnosis for the athlete, participants responded to the following statement, "Please indicate the extent to which Mike (Michelle) appears to have each of the following types of psychological disorders," on a 5-point Likert scale ranging from 1, *disorder not at all likely* to 5, *disorder extremely likely* (see Appendix D). Participants rated the presence of 5 categories of psychological disorders, including "Anxiety Disorder," "Sleep Disorder," "Adjustment Disorder," "Depressive Disorder," and "Substance Abuse." Since the certified athletic trainers were not expected to know the technical terms (e.g., generalized anxiety disorder) for diagnoses established by the American Psychiatric Association (1994), they instead responded to general classes of disorders (e.g., "Anxiety Disorder").

### *Recommendations for Referral*

On a five-point Likert scale ranging from 1, *not at all likely* to 5, *extremely likely*, participants indicated the likelihood of referring the athlete in the vignette to the following types of professionals: (a) coach/assistant coach, (b) counselor/psychologist, (c) physical therapist, (d) physician, (e) psychiatrist, and (f) sport psychology consultant (see Appendix E). Participants also provided similar ratings for the statements, "I would treat Mike (Michelle) myself" and "I would do nothing." In addition to rating the likelihood of referral to each professional, an open-ended space was provided for participants to discuss their recommendations regarding referral.

### *Use of Psychosocial Interventions*

Participants who reported on the referral questionnaire that they would treat the athlete themselves were asked to indicate the types of counseling and psychosocial interventions they would use by responding to the statement, "If you were to treat Mike (Michelle) yourself, please indicate the likelihood that you would use each of the following interventions as part of your treatment plan," followed by a list of 12 counseling and psychosocial strategies/techniques in the case of the injury condition and 10 strategies/techniques in the case of the performance and romantic relationship conditions (see Appendix F). For the performance and romantic relationship conditions, 2 items specific to sport injury rehabilitation (i.e., "facilitate Mike/Michelle's understanding of injury and rehabilitation" and "create variety in rehabilitation exercises") were excluded. The strategies/techniques listed were identical to those provided in the demographic section, from which participants rated their levels of

competency. The specific strategies and techniques included in the inventory were adapted from the instruments used by Wiese et al. (1991) and Larson et al. (1996) (e.g., goal setting, thought control, effective communication, muscular relaxation, social support, mental imagery, concentration skills, positive communication, and variety in rehabilitation exercises), and included additional counseling and psychosocial strategies/techniques such as cognitive relaxation, positive reinforcement, and enhanced understanding of injury and rehabilitation. Participants reported their responses on a 5-point Likert scale ranging from 1, *not at all likely* to 5, *extremely likely*. Additionally, an open-ended space was provided for participants to discuss the course of action they would take with the athlete including the focus of treatment and specific treatment techniques they would use.

## Procedure

### *Athlete Vignettes*

Six vignettes were created that depicted a male or female athlete competing at the university level who was experiencing either a difficult rehabilitation from a sport injury, a significant decline in his or her sport performance, or a painful ending to a romantic relationship (see Appendix G). The six vignettes were equivalent in all aspects except for the gender of the athlete and the three presenting problems, creating male-injury, female-injury, male-performance, female-performance, male-romantic relationship, and female-romantic relationship conditions. In the romantic relationship condition, the male athlete experienced the ending of a relationship with his girlfriend, and the female athlete experienced the ending of a relationship with her boyfriend. In

each vignette, background information was provided about the athlete's gender, age, race/ethnicity, family and social relationships, current living situation, year in college, sport type, sport and academic performance history, current playing position and status (i.e., starter), time in competitive season, and performance statistics for the current season.

Following the background information, was a description of the athlete's presenting problem, which varied according to condition (i.e., injury, performance, or romantic relationship problem). For the injury condition, this description included: "Three weeks ago, Mike (Michelle) suffered a third degree ankle sprain while rebounding during the second half of a close game. Since that time, he (she) has been unable to practice or compete with the team and spends most of the team's practice time in the training room completing rehabilitation exercises. When he (she) visited the training room yesterday, Mike (Michelle) told you that he (she) was devastated by his (her) slow recovery and was worried about not regaining his (her) edge or starting position." For the performance problem condition, this description included: "Three weeks ago, Mike's (Michelle's) sport performance began to significantly decline. During the past seven games, his (her) performance has been consistently poor, with his (her) seven-game field goal average dropping to just under 30% and his (her) free throw average to 65%. As a result of his (her) poor performance, he (she) lost his (her) starting position and has received substantially less playing time. When he (she) visited the training room yesterday, Mike (Michelle) told you that he (she) was devastated by his (her) slump and was worried that he (she) would not be able to get out of it."

Finally, for the romantic relationship condition, this description included: "Three weeks ago, Mike's (Michelle's) girlfriend (boyfriend) of the last three years, broke up with him (her). Mike (Michelle) thought she (he) was "the one" and hoped to marry her (him) one day. When he (she) visited the training room yesterday, Mike (Michelle) told you that he (she) was devastated by the breakup and was worried that he (she) would never find another girlfriend (boyfriend) like her (him)." These descriptions of the athlete's presenting problem were followed by identical descriptions of symptoms associated with major depressive disorder (American Psychiatric Association, 1994) of moderate severity. Symptoms included depressed mood, irritability, hypersomnia, fatigue, concentration problems, anhedonia, and suicidal ideation, which caused significant disruption to the athlete's social (i.e., became socially withdrawn, experienced social conflict) and academic functioning (i.e., stopped attending classes).

#### *Pilot testing*

Prior to soliciting certified athletic trainers' participation in this study, a panel of experts was used to determine the strength of the effect of the stimulus material. A total of 18 faculty and advanced doctoral students in clinical and counseling psychology from the University of North Texas Department of Psychology read one of the athlete vignettes and completed the symptom and diagnosis questionnaires. This information was gathered to obtain a consensus from trained mental health professionals about the nature of the symptoms and diagnos(es) depicted in the vignette. Results indicated that the experts agreed that the symptoms (i.e., rated symptoms such as concentration problems, irritability, sleep difficulties, fatigue, sadness, anhedonia,

restlessness/agitation, and social isolation as *moderately* to *extremely* present) and likely diagnosis (for "Depressive Disorder,"  $M = 4.06$ ,  $SD = 0.73$ ) depicted in the stimulus material were consistent with depression. Additional analyses examining any significant differences in symptom or diagnosis ratings based upon the gender of the athlete or the athlete's presenting problem revealed few significant results. Given the low sample size, multivariate analyses of variance (MANOVAs) were not conducted. Instead, several 2 (athlete gender) by 3 (presenting problem) ANOVAs were conducted separately with the symptoms and diagnoses, with each item of these measures serving as the dependent variable for each analysis. Alpha was set at .01 to control for the familywise error rate. Results indicated that the experts rated sadness significantly lower in the injury condition ( $M = 3.00$ ,  $SD = 0.58$ ) than in romantic relationship ( $M = 4.50$ ,  $SD = 0.58$ ) condition,  $F(2, 11) = 9.60$ ,  $p < .01$ , partial  $\eta^2 = .64$ , but there were no significant differences in sadness ratings between the injury and performance ( $M = 3.83$ ,  $SD = 0.75$ ) conditions or between the performance and romantic relationship conditions. A significant difference also was obtained between the injury and romantic relationship conditions for physical pain, with the injured athlete ( $M = 3.29$ ,  $SD = 0.95$ ) receiving significantly higher ratings than the athlete experiencing a romantic relationship problem ( $M = 1.25$ ,  $SD = 0.50$ ),  $F(2, 10) = 9.13$ ,  $p < .01$ , partial  $\eta^2 = .65$ . There were no significant differences in physical pain ratings between the injury and performance ( $M = 2.20$ ,  $SD = 0.84$ ) conditions or between the performance and romantic relationship conditions, however. Based on these results, minor modifications were made to the description of the athlete's presenting problem in each of the

vignettes to make them as consistent as possible in their wording while providing sufficient information to differentiate the nature of each presenting problem.

### *Experimental Procedure*

Following this initial testing of the stimulus material, the investigator contacted the national office of the NATA for assistance with contacting potential participants via e-mail to solicit their participation in the study. The NATA randomly selected a total of 3600 participants (300 males and 300 females for each of the six experimental conditions) who fit the study criteria (i.e., certified athletic trainers who represented the 2005 membership of the NATA with respect to age and race/ethnicity, and who earned a variety of academic degrees and were employed in a variety of work settings) and e-mailed them a brief letter composed by the investigator describing the general purpose of the study and the request for their participation (see Appendix H). In this letter, participants were told that their participation in the study was completely voluntary and that their completion of the online survey implied their informed consent to participate. Each letter included a link to one of six Websites corresponding to one of the six experimental conditions. Three to four weeks after the initial e-mails were sent to solicit participants, a second letter was e-mailed to all potential participants again requesting their participation and/or thanking them for already having completed the study.

To ensure confidentiality, participants were asked to provide no identifying information on the completed survey. Participants indicated their informed consent to participate by completing the questionnaires after reading the informed consent form (see Appendix I) on the first page of the Website. The order of the questionnaires was

counterbalanced such that half of the Websites asked the participants to complete the demographic questionnaire first, read the vignette, and then answer the questions regarding symptoms, presenting problems, diagnoses, referrals, and psychosocial interventions (if they reported that they would likely treat the athlete in the vignette themselves), and the other half asked participants to read the vignette and complete the symptoms, problems, diagnoses, referrals and psychosocial interventions first and the demographic section last. On the referral questionnaire, participants who indicated that they were *somewhat likely* to *extremely likely* to treat the athlete themselves were forwarded through the Website to the psychosocial interventions questionnaire. Participants who did not fit this criteria were either informed that they completed the survey or were forwarded to the demographics page, depending upon the counterbalancing order.

Once data collection was completed, the participants' data were downloaded directly from the Websites into a spreadsheet software program and then analyzed with a statistical software program.

### *Factor Analyses*

To determine the initial factor structures and internal consistency of the questionnaires created for this study, exploratory factor analyses were conducted with the symptom questionnaire, and the psychosocial interventions competency (taken from the demographic questionnaire) and psychosocial use (both the 10- and 12-item inventories) questionnaires. Total scores were determined for each factor generated from the factor analyses and were the dependent variables used in subsequent



statistical analyses. The diagnosis and referral questionnaires were not factor analyzed given that they were each comprised of a small number of items that represented their own separate measures.

For each factor analysis, the Principal Factors extraction procedure with squared multiple correlations as the communality estimates was used. Multiple factor solutions were considered in each analysis based upon eigenvalues greater than 1.0 and scree plot analysis, and each solution was rotated with Promax rotation to determine the best overall fit with the data. As recommended by Tabachnik and Fidell (1996), only items with factor loadings greater than .45 were retained.

*Symptom questionnaire.* Factor analysis of the symptom questionnaire resulted in a three-factor solution accounting for 42.0% of the overall response variance. The first factor (Depressive Symptoms) consisted of 7 items most commonly associated with depression (i.e., lack of interest in activities, social isolation, sadness, hopelessness, helplessness, suicidal ideation, and fatigue). The second factor (Anger/Agitation Symptoms) consisted of 3 items related to anger and agitation (i.e., anger, restlessness/agitation, and irritability). Finally, the third factor (Compulsive Behavioral Symptoms) consisted of 2 items describing behaviors of a compulsive or addictive nature (i.e., eating disturbance, increased use of substances). Eight items did not load on any factor (concentration problems, hallucinations/delusions, sleep difficulties, personality disturbance, worry, low self-esteem, tension, and physical pain). The three factors were moderately correlated (Depressive Symptoms and Anger/Agitation Symptoms,  $r = .56$ ; Depressive Symptoms and Compulsive Behavioral Symptoms,  $r =$

.37; and Anger/Agitation Symptoms and Compulsive Behavioral Symptoms,  $r = .43$ ). Cronbach's alphas were .77, .67, and .53 for the Depressive, Anger/Agitation, and Compulsive Behavioral Symptom factors, respectively. See Table 1 for the factor loadings for each item of the symptom questionnaire.

*Psychosocial interventions competency questionnaire.* Factor analysis of the psychosocial interventions competency questionnaire resulted in a three-factor solution accounting for 69.6% of the overall response variance. The first factor (Cognitive-Behavioral Techniques) consisted of 6 items related to teaching and/or using cognitive-behavioral techniques with athletes (i.e., teaching/using cognitive relaxation techniques to reduce worry/tension; teaching/using mental rehearsal/visualization; teaching concentration skills; teaching/using muscular relaxation techniques to reduce physical tension; teaching thought control techniques to encourage positive thinking, reduce negative mood, and/or enhance self-confidence; and teaching effective communication skills). The second factor (Physical Rehabilitation Techniques) was comprised of 3 items related to the physical treatment of sport injuries (i.e., creating variety in rehabilitation exercises, facilitating athlete's understanding of injury and rehabilitation, and setting realistic goals for treatment). Finally, the third factor (Supportive Interventions) consisted of 3 items related to supporting and counseling the athlete (i.e., providing emotional support through use of active listening and positive communication, positively reinforcing the athlete's efforts to change, and improving social support). No items were dropped as a result of the factor analysis, as all items loaded on one of the three factors. The three factors were moderately correlated (Cognitive-Behavioral Techniques

Table 1

*Factor Loadings for the Symptom Questionnaire*

Item	Factor 1	Factor 2	Factor 3
1. Concentration problems	.412	.098	-.049
2. Irritability	.032	.553 <sup>a</sup>	-.095
3. Hallucinations/delusions	-.087	-.025	.444
4. Hopelessness	.581 <sup>a</sup>	-.088	.157
5. Sleep difficulties	.105	.036	.343
6. Sadness	.592 <sup>a</sup>	.037	-.034
7. Fatigue	.494 <sup>a</sup>	-.063	.039
8. Personality disturbance	.433	.053	-.005
9. Worry	.361	.274	.038
10. Low self-esteem	.421	.087	.192
11. Eating disturbance	.090	.013	.598 <sup>a</sup>
12. Tension	.238	.442	.043
13. Suicidal thinking	.536 <sup>a</sup>	-.175	.217
14. Lack of interest in activities	.724 <sup>a</sup>	-.047	-.239
15. Restlessness/agitation	.122	.563 <sup>a</sup>	-.070
16. Physical pain	-.092	.371	.188
17. Anger	-.164	.792 <sup>a</sup>	.056
18. Helplessness	.541 <sup>a</sup>	.129	.036
19. Social isolation	.669 <sup>a</sup>	-.013	-.146
20. Increased use of substances	-.090	.011	.566 <sup>a</sup>

*Note.* Factor 1 = Depressive Symptoms; Factor 2 = Anger/Agitation Symptoms; Factor 3 = Compulsive Behavioral Symptoms.

<sup>a</sup>Item loaded on this factor.

and Physical Rehabilitation Techniques,  $r = .31$ ; Cognitive-Behavioral Techniques and Supportive Interventions,  $r = .55$ ; and Physical Rehabilitation Techniques and Supportive Interventions,  $r = .64$ ). Cronbach's alphas were .90, .79, and .76 for the Cognitive-Behavioral Techniques, Physical Rehabilitation Techniques, and Supportive Interventions factors, respectively. Table 2 provides the factor loadings for each item on the psychosocial interventions competency questionnaire.

*Use of psychosocial interventions questionnaire—10 items.* Factor analysis of the 10-item questionnaire assessing athletic trainers' use of psychosocial interventions resulted in a two-factor solution (i.e., Cognitive-Behavioral Techniques and Supportive Interventions) accounting for 54.4% of the overall response variance. The items comprising the two factors were identical to the Cognitive-Behavioral Techniques and Supportive Interventions factors obtained with the psychosocial interventions competency questionnaire (see Table 3). The factors were moderately correlated ( $r = .39$ ). Only one item (set realistic goals for treatment) did not load on either factor. Cronbach's alphas were .84 and .70 for the Cognitive-Behavioral Techniques and Supportive Interventions factors, respectively.

*Use of psychosocial interventions questionnaire—12 items.* Incorporating the two injury-specific items into the factor analysis of the psychosocial interventions use questionnaire resulted in a two-factor solution, in contrast to the three-factor solution obtained with similar items from the 12-item psychosocial interventions competency questionnaire. The two factors, which were moderately correlated ( $r = .37$ ), accounted for 56.5% of the overall response variance. The first factor (Facilitating Support and

Table 2

*Factor Loadings for the Psychosocial Interventions Competency Questionnaire*

Item	Factor 1	Factor 2	Factor 3
1. Setting realistic goals for treatment	.075	.643 <sup>a</sup>	.006
2. Teaching thought control techniques	.713 <sup>a</sup>	.008	.024
3. Teaching effective communication skills	.540 <sup>a</sup>	-.096	.304
4. Teaching/using cognitive relaxation techniques	.872 <sup>a</sup>	-.056	-.001
5. Teaching/using muscular relaxation techniques	.756 <sup>a</sup>	.069	-.054
6. Improving social support	.257	.047	.475 <sup>a</sup>
7. Teaching/using mental rehearsal/visualization	.856 <sup>a</sup>	.080	-.116
8. Teaching concentration skills	.844 <sup>a</sup>	-.022	.006
9. Providing emotional support	-.062	.028	.778 <sup>a</sup>
10. Positively reinforcing the athlete's efforts to change	-.006	.043	.759 <sup>a</sup>
11. Facilitating athlete's understanding of injury and rehabilitation	-.067	.684 <sup>a</sup>	.237
12. Creating variety in rehabilitation exercises	.006	.853 <sup>a</sup>	-.091

*Note.* Factor 1 = Cognitive-Behavioral Techniques; Factor 2 = Physical Rehabilitation Techniques; Factor 3 = Supportive Interventions.

<sup>a</sup>Item loaded on this factor.

Table 3

*Factor Loadings for the Use of Psychosocial Interventions Questionnaire—10 Items*

Item	Factor 1	Factor 2
1. Set realistic goals for treatment	.300	.105
2. Teach thought control techniques	.694 <sup>a</sup>	-.022
3. Teach effective communication skills	.544 <sup>a</sup>	.145
4. Teach/use cognitive relaxation techniques	.713 <sup>a</sup>	.044
5. Teach/use muscular relaxation techniques	.761 <sup>a</sup>	-.109
6. Improve social support	.015	.528 <sup>a</sup>
7. Teach/use mental rehearsal/visualization	.753 <sup>a</sup>	-.070
8. Teach concentration skills	.638 <sup>a</sup>	.056
9. Provide emotional support	-.029	.716 <sup>a</sup>
10. Positively reinforce Mike's/Michelle's efforts to change	.041	.767 <sup>a</sup>

*Note.* Factor 1 = Cognitive-Behavioral Techniques; Factor 2 = Supportive Interventions.

<sup>a</sup>Item loaded on this factor.

Rehabilitation) consisted of the same 3 items included in the Supportive Interventions factor for the 10-item psychosocial intervention use questionnaire and the psychosocial intervention competency questionnaire (i.e., providing emotional support through use of active listening and positive communication, positively reinforcing the athlete's efforts to change, and improving social support) in addition to 2 of the 3 items (create variety in rehabilitation exercises and facilitate athlete's understanding of injury and rehabilitation) comprising the Physical Rehabilitation Techniques factor for the psychosocial intervention competency questionnaire, resulting in 5 items total. Setting realistic goals for treatment did not load on this factor, as it had on the Physical Rehabilitation Techniques factor for the psychosocial intervention competency questionnaire. The second factor (Cognitive-Behavioral Techniques) consisted of 5 of the 6 items included in this factor for the 10-item psychosocial intervention use questionnaire and the psychosocial intervention competency questionnaire. Teaching effective communication skills did not load on this factor, as it had with the other questionnaires. See Table 4 for the factor loadings for each item on the 12-item psychosocial intervention use questionnaire. Cronbach's alphas were .84 and .83 for the Facilitating Support and Rehabilitation and Cognitive-Behavioral Techniques factors, respectively.

## Statistical Analyses

### *Demographic Information*

Gender differences were examined among the demographic variables with chi-square analyses for the categorical variables and *t*-tests/ANOVAs for the continuous variables. For the total sample, statistical differences between the mean scores of the 4

Table 4

*Factor Loadings for the Use of Psychosocial Interventions Questionnaire—12 Items*

Item	Factor 1	Factor 2
1. Set realistic goals for treatment	.447	-.065
2. Teach thought control techniques	.044	.506 <sup>a</sup>
3. Teach effective communication skills	.234	.432
4. Teach/use cognitive relaxation techniques	.095	.755 <sup>a</sup>
5. Teach/use muscular relaxation techniques	-.148	.818 <sup>a</sup>
6. Improve social support	.543 <sup>a</sup>	.065
7. Teach/use mental rehearsal/visualization	-.065	.716 <sup>a</sup>
8. Teach concentration skills	-.002	.783 <sup>a</sup>
9. Provide emotional support	.860 <sup>a</sup>	-.055
10. Positively reinforce Mike's/Michelle's efforts to change	.660 <sup>a</sup>	.008
11. Facilitate Mike's/Michelle's understanding of injury and rehabilitation	.743 <sup>a</sup>	.078
12. Create variety in rehabilitation exercises	.839 <sup>a</sup>	-.029

*Note.* Factor 1 = Facilitating Support and Rehabilitation; Factor 2 = Cognitive-Behavioral Techniques.

<sup>a</sup>Item loaded on this factor.



items assessing participants' perceptions of the roles of athletic trainers and between the 3 psychosocial intervention competency factor scores were analyzed separately with 2 one-way ANOVAs. Additionally, the influence of gender, years since academic degree was earned, and education/training in sport and general psychology on the athletic trainers' perceived competency in using psychosocial interventions was analyzed through a 2 (athletic trainer gender) x 5 (years since academic degree earned) MANOVA with the psychosocial intervention competency factor scores as the dependent variables and four 2 (athletic trainer gender) x 2 (coursework taken) MANOVAs with the different general and sport psychology coursework areas as the independent variables and the psychosocial competency factor scores as the dependent variables. The independent variable, years since academic degree was earned, was grouped into five levels (i.e., 5 years or less, 6-10 years, 11-15 years, 16-20 years, and more than 20 years) for practical and conceptual reasons given the distribution of the sample (see the Background Information section of the Results section for the percentages of athletic trainers within each level) and the timing of the NATA's Role Delineation Study in 1999 (NATABOC, 1999), which outlined the professional skills to be performed by entry-level certified athletic trainers and determined the testing areas on the NATA certification examination. Grouping the independent variable in this way allowed the impact of these certification changes on athletic trainers' perceptions of competency in psychosocial interventions to be tested.

Prior to conducting each MANOVA, multicollinearity was assessed and determined not to be problematic given that none of the relationships between the dependent

variables exceeded  $r = .70$ . Follow-up analyses were conducted for significant effects using ANOVAs and Scheffé post hoc tests when applicable and effect sizes were determined using partial eta squared ( $\eta^2$ ) and Cohen's  $d$ . For each analysis, alpha was set at .01 to control for the familywise error rate.

#### *Primary Problem, Symptoms, Diagnosis, Referral, and Use of Psychosocial Interventions*

Mean score differences between the symptom factors, diagnosis ratings, referral ratings, and use of psychosocial techniques factors also were examined separately with the total sample using several one-way ANOVAs. The influences of athletic trainer gender, athlete gender, and presenting problem on the athletic trainers' assessments of the athlete's primary problem, symptoms, diagnosis, and referral needs, were examined with several 2 (athletic trainer gender) x 2 (athlete gender) x 3 (presenting problem) MANOVAs. For the problem, diagnosis, and referral ratings, the dependent variables were the ratings for each item on the scale. For the symptom ratings, the dependent variables were the three factor scores generated from factor analysis of the symptom questionnaire. The effects of the independent variables on the athletic trainers' use of psychosocial techniques were examined with a 2 (athletic trainer gender) x 2 (athlete gender) x 2 (presenting problem) MANOVA for the 10-item inventory (participants responding to the performance problem vignette were excluded from the analysis due to a small  $n$ ) and a 2 (athletic trainer gender) x 2 (athlete gender) MANOVA for the 12-item inventory (with participants responding to the injured athlete vignette only). For each MANOVA, the dependent variables were the psychosocial intervention factor scores generated from factor analysis of each inventory. Multicollinearity was assessed

with all analyses and deemed unproblematic, and alpha was set at .01 to control for the familywise error rate. Follow-up analyses were conducted with ANOVAs and Scheffé post hoc tests when applicable and effect sizes were calculated with partial  $\eta^2$  and Cohen's  $d$ . Open-ended responses from the referral and psychosocial intervention questionnaires were categorized into themes and analyzed descriptively.

*Exploratory Relationships between Psychosocial Intervention Competencies and Use of Psychosocial Interventions*

Finally, exploratory relationships between the athletic trainers' perceptions of competency in using psychosocial interventions and their actual use of the interventions were examined with bivariate correlational analyses.

## CHAPTER 3

### RESULTS

#### Demographic Information

##### *Background Information*

For general background information, significant gender differences were obtained for age,  $t(514.05) = 5.72, p < .001$ , year academic degree was earned,  $\chi^2(4, N = 633) = 21.14, p < .001$ , current work setting as an athletic trainer,  $\chi^2(8, N = 634) = 23.32, p < .01$ , and sport teams worked with,  $\chi^2(15, N = 608) = 54.56, p < .001$ . The male athletic trainers ( $M = 36.44, SD = 9.50, d = 0.47$ ) were significantly older than the female athletic trainers ( $M = 32.33, SD = 8.10$ ) and were more likely to have received their highest academic degrees more than 20 years ago (65.6%). Female athletic trainers were more likely than male athletic trainers to have earned their highest academic degrees sometime within the past 20 years (percentages ranged from 51.9% to 65.1%). Male athletic trainers were more likely than female athletic trainers to be employed in work settings such as hospitals (53.3%), sports medicine clinics (55.4%), private practice (56.3%), and amateur/professional organizations (77.3%), whereas the female athletic trainers were more likely to work at public (59.6%) and private (65.1%) high schools, community colleges (58.3%), 4-year colleges/universities (59.4%), and "other" settings (71.4%). Males predominantly worked with football, baseball, tennis, wrestling, golf, and cross country/downhill skiing teams (percentages ranged from 59.6% to 100%), whereas females predominantly worked with basketball, softball, soccer, cross country/track, gymnastics, volleyball, crew, multiple/all sports,

and "other" teams (percentages ranged from 55.0% to 100%). An equal number of males and females worked with swimming and diving teams. There were no significant gender differences in race/ethnicity,  $\chi^2(4, N = 636) = 5.22, p = .27$ , highest degrees earned,  $\chi^2(4, N = 635) = 7.34, p = .12$ , areas degrees were earned,  $\chi^2(6, N = 638) = 12.30, p = .06$ , NATA certification,  $\chi^2(1, N = 640) = 1.46, p = .23$ , state licenses held,  $\chi^2(1, N = 640) = 1.60, p = .21$ , or other licenses held,  $\chi^2(1, N = 640) = 1.58, p = .21$ . See Table 5 for the gender comparisons of all demographic mean scores and frequency counts.

#### *Education and Training in Sport and General Psychology*

Participants reported some education and training in general and sport psychology, including undergraduate courses in: sport and exercise psychology (66.6%), psychology of injury/rehabilitation in sport (48.1%), abnormal psychology/psychopathology (48.4%), and/or counseling skills and techniques (23.8%). At the graduate level, considerably fewer participants completed courses in these areas (35.9% for sport and exercise psychology, 23.8% for psychology of injury/rehabilitation, 5.9% for abnormal psychology/psychopathology, and 16.3% for counseling skills and techniques), with the least number of participants reporting completion of continuing education credits (11.6% for sport and exercise psychology, 16.4% for psychology of injury/rehabilitation, 2.8% for abnormal psychology/psychopathology, and 9.8% for counseling skills and techniques). Even fewer participants received any formal supervision in sport psychology/counseling with individual athletes (4.5%) or sport teams (2.2%).

Table 5

*Athletic Trainer Gender Comparisons for Demographic Background Information*

Variable	Male				Female				$\chi^2$	<i>t</i>
	<i>n</i>	%	<i>M</i>	<i>SD</i>	<i>n</i>	%	<i>M</i>	<i>SD</i>		
Age	266		36.44	9.50	368		32.33	8.10		5.86**
Race/ethnicity									5.22	
White, non-Hispanic	249	92.9			356	96.7				
Black, non-Hispanic	2	0.7			2	0.5				
Hispanic	8	3.0			5	1.4				
Asian/Asian American	6	2.2			3	0.8				
Other	3	1.1			2	0.5				
Highest degree									7.34	
BA/BS	65	24.3			115	31.3				
MA/MS/Med	185	69.0			238	64.9				
PhD/PsyD/EdD	10	3.7			6	1.6				
MD	1	0.4			0	0.0				
Other	7	2.6			8	2.2				

\* $p < .01$ , \*\* $p < .001$ *(table continues)*

Table 5 (continued).

Variable	Male				Female				$\chi^2$	<i>t</i>
	<i>n</i>	%	<i>M</i>	<i>SD</i>	<i>n</i>	%	<i>M</i>	<i>SD</i>		
Year highest degree earned									21.14**	
2000-2005	103	38.9			192	52.2				
1995-1999	63	23.8			87	23.6				
1990-1994	34	12.8			41	11.1				
1985-1989	25	9.4			27	7.3				
1984 or earlier	40	15.1			21	5.7				
Area highest degree awarded									12.30	
Athletic training	87	32.3			130	35.2				
Physical therapy	16	5.9			11	3.0				
Kinesiology	16	5.9			34	9.2				
Exercise science	26	9.7			39	10.6				
Physical education	43	16.0			38	10.3				
Education	35	13.0			38	10.3				
Other	46	17.1			79	21.4				

\* $p < .01$ , \*\* $p < .001$

(table continues)

Table 5 (*continued*).

Variable	Male				Female				$\chi^2$	<i>t</i>
	<i>n</i>	%	<i>M</i>	<i>SD</i>	<i>n</i>	%	<i>M</i>	<i>SD</i>		
Athletic training work setting									23.32*	
High school (public)	78	29.1			115	31.4				
High school (private)	15	5.6			28	7.7				
Community college	10	3.7			14	3.8				
4-yr college/university	82	30.6			120	32.8				
Hospital	8	3.0			7	1.9				
Sports medicine clinic	31	11.6			25	6.8				
Amateur/professional sports organization	17	6.3			5	1.4				
Private practice	9	3.4			7	1.9				
Other	18	6.7			45	12.3				

\* $p < .01$ , \*\* $p < .001$

(*table continues*)



Table 5 (continued).

Variable	Male				Female				$\chi^2$	<i>t</i>
	<i>n</i>	%	<i>M</i>	<i>SD</i>	<i>n</i>	%	<i>M</i>	<i>SD</i>		
Sport team work with									54.56**	
Football	99	38.5			67	19.1				
Basketball	20	7.8			56	16.0				
Baseball	10	3.9			5	1.4				
Softball	2	0.8			6	1.7				
Soccer	10	3.9			16	4.6				
Cross country/track & field	1	0.4			8	2.3				
Tennis	1	0.4			0	0.0				
Swimming & diving	1	0.4			1	0.3				
Gymnastics	0	0.0			3	0.9				
Volleyball	3	1.2			8	2.3				
Wrestling	4	1.6			2	0.6				
Golf	1	0.4			0	0.0				

\* $p < .01$ , \*\* $p < .001$

(table continues)

Table 5 (continued).

Variable	Male				Female				$\chi^2$	<i>t</i>
	<i>n</i>	%	<i>M</i>	<i>SD</i>	<i>n</i>	%	<i>M</i>	<i>SD</i>		
Sport team work with									54.56**	
Crew	0	0.0			1	0.3				
Cross country/downhill ski	2	0.8			0	0.0				
Other	36	14.0			44	12.5				
Multiple/all sports	67	26.1			134	38.2				
NATABOC certification									1.46	
Yes	270	100.0			368	99.5				
No	0	0.0			2	0.5				
State license/certificate									1.60	
Yes	213	78.9			276	74.6				
No	57	21.1			94	25.4				
Other license									1.58	
Yes	73	27.0			84	22.7				
No	197	73.0			286	77.3				

\* $p < .01$ , \*\* $p < .001$

Only one significant gender difference was obtained in the aforementioned areas, with more male athletic trainers (65.8%) reporting that they had taken a graduate-level abnormal psychology/psychopathology course than female athletic trainers (34.2%),  $\chi^2(1, N = 640) = 9.23, p < .01$ . There were no significant gender differences in undergraduate abnormal/psychopathology coursework or continuing education; or in sport and exercise psychology, psychology of injury/rehabilitation in sport, and counseling skills and techniques coursework at any level (see Table 6). Additionally, there were no significant gender differences in sport psychology/counseling supervision received with individual athletes or sport teams (see Table 6).

### *Referral Practices*

When asked about their past referral practices to mental health professionals, most participants reported having access to a counselor/psychologist (70.5%) and indicated that they had referred athletes to counselors/psychologists in the past (59.2%) for issues such as disordered eating, depression, anxiety, personal/social issues, adjustment difficulties, and difficulties coping with a career-ending injury/lengthy rehabilitation. They found the counselors/psychologists to be helpful in treating the athlete(s) ( $M = 3.86, SD = 0.88$ ). There were no significant differences between male and female athletic trainers in terms of their access to,  $\chi^2(1, N = 634) = 1.39, p = .24$ , and referrals to,  $\chi^2(1, N = 637) = .98, p = .32$ , counselors/psychologists, or in terms of their perceptions of the helpfulness of the counselors/psychologists,  $t(381) = 2.21, p = .03$ . According to the open-ended responses, most of the participants who had never referred an athlete to a counselor/psychologist indicated

Table 6

*Athletic Trainer Gender Comparisons for Education and Training in Sport and General Psychology*

Variable	Male <sup>a</sup>		Female <sup>b</sup>		$\chi^2$
	<i>rf</i>	% <sup>d</sup>	<i>rf</i>	% <sup>d</sup>	
Undergraduate courses					
Sport and exercise psychology	190	70.4	236	63.8	3.04
Psychology of injury/rehabilitation in sport	132	48.9	176	47.6	0.11
Abnormal psychology/psychopathology	124	45.9	186	50.3	1.18
Counseling skills and techniques	63	23.3	89	24.1	0.05
Graduate courses					
Sport and exercise psychology	99	36.7	131	35.4	0.11
Psychology of injury/rehabilitation in sport	74	27.4	78	21.1	3.45
Abnormal psychology/psychopathology	25	9.3	13	3.5	9.23*
Counseling skills and techniques	45	16.7	59	15.9	0.06

<sup>a</sup> $n = 270$ . <sup>b</sup> $n = 370$ . <sup>c</sup>Number of athletic trainers who took one or more courses in this area. <sup>d</sup>Percentage of athletic trainers within this gender who took one or more courses in this area.

\* $p < .01$

(table continues)

Table 6 (*continued*).

Variable	Male <sup>a</sup>		Female <sup>b</sup>		$\chi^2$
	<i>rf</i>	% <sup>d</sup>	<i>rf</i>	% <sup>d</sup>	
Continuing education					
Sport and exercise psychology	33	12.2	41	11.1	0.20
Psychology of injury/rehabilitation in sport	42	15.6	63	17.0	0.25
Abnormal psychology/psychopathology	8	3.0	10	2.7	0.04
Counseling skills and techniques	29	10.7	34	9.2	0.42
Sport psychology/counseling supervision					
Sport teams	6	2.2	8	2.2	0.00
Individual athletes	12	4.4	17	4.6	0.01

<sup>a</sup>*n* = 270. <sup>b</sup>*n* = 370. <sup>c</sup>Number of athletic trainers who took one or more courses in this area. <sup>d</sup>Percentage of athletic trainers within this gender who took one or more courses in this area.

\**p* < .01

that they had not done so because they had never treated an athlete needing this type of referral (70.2%).

Compared to counselors/psychologists, participants reported more limited access to psychiatrists (30.9%) and provided fewer referrals to psychiatrists in the past (10.9%). Male athletic trainers (52.5%) reported significantly greater access to psychiatrists compared to the female athletic trainers (47.5%),  $\chi^2(1, N = 632) = 12.49$ ,  $p < .001$ , but did not provide a significantly different number of referrals to these types of professionals,  $\chi^2(1, N = 634) = 0.11$ ,  $p = .74$ . Participants who had referred athletes to psychiatrists indicated that they had done so for reasons such as depression, suicidal ideation, and eating disorders, whereas most of the participants who had never referred an athlete indicated that they had not done so because they had not encountered a situation requiring a referral (47.3%) and/or they did not have access to a psychiatrist (24.3%). Participants who had referred athletes, however, found the psychiatrists to be helpful in treating the athlete(s) ( $M = 4.05$ ,  $SD = 0.92$ ). There were no significant differences between male and female athletic trainers' perceptions of the helpfulness of the psychiatrists,  $t(76) = 0.51$ ,  $p = .61$ .

Lastly, few participants reported having access to a sport psychology consultant (24.7%) or having referred athletes to this type of professional (17.7%). Those who had referred an athlete(s), however, found the sport psychology consultant to be helpful ( $M = 4.01$ ,  $SD = 0.91$ ) in working with athletes on issues such as coping with sport injuries and their subsequent return to full sport participation, managing performance stress/anxiety, and learning psychological skills to enhance sport

performance. There were no significant gender differences in terms of access,  $\chi^2(1, N = 626) = 3.55, p = .06$ , referrals,  $\chi^2(1, N = 610) = 0.93, p = .33$ , or perceived helpfulness of sport psychology consultants,  $t(119) = 0.70, p = .49$ . Most participants who had never referred an athlete to a sport psychology consultant indicated that they had not done so because they had did not have access to, or were unaware of any, sport psychology consultants in their area (57.1%). Additionally, many participants stated that they had never referred to sport psychology consultants because they had not experienced a situation where the referral was warranted (34.2%). See Table 7 for the gender comparisons of all mean scores and frequency counts associated with referrals to counselors/psychologists, psychiatrists, and sport psychology consultants.

#### *Perceived Roles of Certified Athletic Trainers*

One-way ANOVA results indicated that participants perceived significant differences in the roles of athletic trainers,  $F(3, 2545) = 257.99, p < .001$ . Scheffé post hoc analyses indicated that the athletic trainers most strongly agreed that athletic trainers were to administer therapeutic treatments to facilitate physical recovery from injury ( $M = 4.79, SD = 0.51$ ), compared to managing psychological issues of athletes by using psychosocial techniques in rehabilitation (e.g., goal setting) ( $M = 4.45, SD = 0.65, d = 0.59$ ), facilitating appropriate referrals for athletes' personal issues (e.g., stress, identity issues) ( $M = 4.20, SD = 0.74, d = 0.92$ ), and counseling athletes on personal issues ( $M = 3.69, SD = 0.93, d = 1.47$ ). They also more strongly agreed that athletic trainers were to use psychosocial techniques in rehabilitation compared to

Table 7

*Athletic Trainer Gender Comparisons for Referral Practices*

Variable	Male				Female				$\chi^2$	<i>t</i>
	<i>n</i> <sup>a</sup>	% <sup>b</sup>	<i>M</i>	<i>SD</i>	<i>n</i> <sup>a</sup>	% <sup>b</sup>	<i>M</i>	<i>SD</i>		
Counselor/psychologist										
Access to	269	73.6			365	69.3				1.39
Past referral(s)	269	57.2			368	61.1				0.98
Perceived helpfulness	159		3.98	0.77	224		3.78	0.94		2.21
Psychiatrist										
Access to	267	39.0			365	25.8				12.49**
Past referral(s)	269	11.5			365	10.7				0.11
Perceived helpfulness	37		4.11	0.94	41		4.00	0.92		0.51

<sup>a</sup>Total number of participants within this gender responding to this item. <sup>b</sup>Percentage of athletic trainers responding "yes" to this item. <sup>c</sup>Scores range from 1, *not at all helpful*, to 5, *extremely helpful*.

\* $p < .01$ , \*\* $p < .001$

(table continues)



Table 7 (*continued*).

Variable	Male				Female				$\chi^2$	<i>t</i>
	<i>n</i> <sup>a</sup>	% <sup>b</sup>	<i>M</i>	<i>SD</i>	<i>n</i> <sup>a</sup>	% <sup>b</sup>	<i>M</i>	<i>SD</i>		
Sport psychology consultant										
Access to	265	29.1			361	22.4			3.55	
Past referral(s)	256	20.3			354	17.2			0.93	
Perceived helpfulness	60		4.07	0.84	61		3.95	0.97		0.70

<sup>a</sup>Total number of participants within this gender responding to this item. <sup>b</sup>Percentage of athletic trainers responding "yes" to this item. <sup>c</sup>Scores range from 1, *not at all helpful*, to 5, *extremely helpful*.

\* $p < .01$ , \*\* $p < .001$

facilitating psychological referrals ( $d = 0.36$ ) or providing counseling ( $d = 0.95$ ), and more strongly agreed that athletic trainers were to provide referrals compared to personal counseling ( $d = 0.61$ ). There were no significant gender differences in the athletic trainers' perceptions of their roles, Wilks'  $\lambda = .99$ ,  $F(4, 630) = 2.32$ ,  $p = .06$ , partial  $\eta^2 = .01$  (see Table 8).

#### *Perceived Competency in Using Psychosocial Interventions*

With the total sample of athletic trainers, significant differences were obtained between the athletic trainers' perceptions of competency in providing Cognitive-Behavioral Techniques, Physical Rehabilitation Techniques, and Supportive Interventions,  $F(2, 1886) = 803.47$ ,  $p < .001$ . Post-hoc Scheffé analyses indicated that the athletic trainers felt significantly more competent in providing Physical Rehabilitation Techniques ( $M = 4.46$ ,  $SD = 0.54$ ) compared to Supportive Interventions ( $M = 4.06$ ,  $SD = 0.72$ ,  $d = 0.63$ ) and Cognitive-Behavioral Techniques ( $M = 2.86$ ,  $SD = 0.90$ ,  $d = 2.16$ ), and felt significantly more competent in providing Supportive Interventions compared to Cognitive-Behavioral Techniques ( $d = 1.48$ ).

#### *Influence of athletic trainer gender and years since highest degree was earned.*

According to the 2 (athletic trainer gender) x 5 (years since academic degree earned) MANOVA, the interaction between athletic trainer gender and number of years since academic degree was earned was nonsignificant, Wilks'  $\lambda = .98$ ,  $F(12, 1571.87) = 1.28$ ,  $p = .22$ , partial  $\eta^2 = .009$ , as well as the main effect for number of years since academic degree was earned, Wilks'  $\lambda = .98$ ,  $F(12, 1571.87) = 0.80$ ,  $p = .66$ , partial  $\eta^2$

Table 8

*MANOVA Results for Perceived Roles of Athletic Trainers: Main Effect for Athletic Trainer Gender*

Effect	Male ( <i>n</i> = 269)		Female ( <i>n</i> = 366)		$\lambda$	<i>F</i>	partial $\eta^2$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Main effect for athletic trainer gender					.99	2.32	.01
Univariate effects							
Use psychosocial techniques in rehabilitation	4.38	0.67	4.51	0.64		6.08	.01
Facilitate referrals for personal issues	4.13	0.71	4.25	0.75		4.39	.007
Counsel athletes on personal issues	3.70	0.90	3.70	0.95		0.00	.000
Facilitate physical recovery from injury	4.78	0.51	4.80	0.52		0.12	.000

*Note.* Scores range from 1, *strongly disagree*, to 5, *strongly agree*.

= .005. There was a significant main effect for athletic trainer gender, however, Wilks'  $\lambda$  = .97,  $F(3, 594) = 5.95$ ,  $p < .01$ , partial  $\eta^2 = .03$ . Univariate analyses indicated that the female athletic trainers ( $M = 4.16$ ,  $SD = 0.68$ ,  $d = 0.31$ ) felt significantly more competent in providing Supportive Interventions compared to the male athletic trainers ( $M = 3.94$ ,  $SD = 0.77$ ),  $F(1, 596) = 13.07$ ,  $p < .001$ , partial  $\eta^2 = .02$ . There were no significant differences between male and female athletic trainers, however, in their perceptions of competency in providing Cognitive-Behavioral Techniques,  $F(1, 596) = 1.55$ ,  $p = .21$ , partial  $\eta^2 = .003$ , or Physical Rehabilitation Techniques,  $F(1, 596) = 0.12$ ,  $p = .73$ , partial  $\eta^2 = .000$ . Tables 9 and 10 list the mean scores, standard deviations, and MANOVA/ANOVA results for each main effect.

*Influence of athletic trainer gender and coursework taken.* To statistically analyze the influence of athletic trainer gender and coursework in general and sport psychology on athletic trainers' feelings of competency in providing psychosocial interventions, four 2 (athletic trainer gender) x 2 (coursework taken) MANOVAs with the psychosocial competency factors as the dependent variables were conducted separately with coursework in sport and exercise psychology, psychology of injury/rehabilitation in sport, abnormal psychology/psychopathology, and counseling skills and techniques. Given an unequal distribution among the participants in terms of coursework taken at the undergraduate, graduate, and continuing education levels for the aforementioned classes, coursework taken was recoded into two levels by participants who had taken at least one course in a specific subject area at any level and participants who had not taken the course at any level. With this recoding, 520 (85.0%) participants had taken at

Table 9

*MANOVA Results for Perceived Competency in Psychosocial Interventions: Main Effect for Athletic Trainer Gender*

Effect	Male ( <i>n</i> = 255)		Female ( <i>n</i> = 351)		$\lambda$	<i>F</i>	partial $\eta^2$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Main effect for athletic trainer gender					.97	5.95*	.03
Univariate effects							
Cognitive-Behavioral Techniques factor	2.85	0.91	2.86	0.90		1.55	.003
Physical Rehabilitation Techniques factor	4.48	0.52	4.45	0.56		0.12	.000
Supportive Interventions factor	3.94	0.77	4.16	0.68		13.07**	.02

*Note.* Scores range from 1, *not at all competent*, to 5, *extremely competent*.

\**p* < .01, \*\**p* < .001

Table 10

*MANOVA Results for Perceived Competency in Psychosocial Interventions: Main Effect for Years Since Academic Degree Earned*

Effect	5 Years or Less ( <i>n</i> = 285)		6-10 Years ( <i>n</i> = 148)		11-15 Years ( <i>n</i> = 73)		16-20 Years ( <i>n</i> = 46)		Over 20 Years ( <i>n</i> = 54)		$\lambda$	<i>F</i>	partial $\eta^2$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Main effect for number of years since degree earned											.98	0.80	.005
Univariate effects													
Cognitive-Behavioral Techniques factor	2.85	0.85	2.85	0.88	2.82	0.99	3.06	1.09	2.82	0.98		0.68	.005
Physical Rehabilitation Techniques factor	4.46	0.54	4.42	0.53	4.55	0.53	4.57	0.52	4.41	0.61		1.01	.007
Supportive Interventions factor	4.07	0.72	4.09	0.68	4.07	0.74	4.09	0.77	3.96	0.83		0.08	.001

*Note.* Scores range from 1, *not at all competent*, to 5, *extremely competent*.

least one course in sport and exercise psychology, whereas 92 (15.0%) had not; 432 (70.6%) had taken at least one psychology of injury/rehabilitation in sport course, whereas 180 (29.4%) had not; 327 (53.4%) had taken at least one abnormal psychology/psychopathology course, whereas 285 (46.6%) had not; and 247 (40.4%) had taken at least one counseling skills and techniques course, whereas 365 (59.6%) had not.

For sport and exercise psychology coursework, the athletic trainer gender by coursework taken interaction was nonsignificant, Wilks'  $\lambda = .99$ ,  $F(3, 606) = 0.94$ ,  $p = .42$ , partial  $\eta^2 = .005$ , as well as the main effect for coursework taken, Wilks'  $\lambda = .99$ ,  $F(3, 606) = 2.72$ ,  $p = .04$ , partial  $\eta^2 = .01$ , indicating that the completion of coursework in sport and exercise psychology did not significantly influence athletic trainers' feelings of competence in providing psychosocial interventions (see Table 11).

The athletic trainer gender by coursework taken interaction also was nonsignificant for psychology of injury/rehabilitation in sport coursework, Wilks'  $\lambda = .99$ ,  $F(3, 606) = 1.36$ ,  $p = .25$ , partial  $\eta^2 = .007$ ; however, the main effect for coursework taken was significant, Wilks'  $\lambda = .95$ ,  $F(3, 606) = 10.53$ ,  $p < .001$ , partial  $\eta^2 = .05$ . Univariate results indicated that athletic trainers who took coursework in psychology of injury/rehabilitation in sport felt significantly more competent in providing Cognitive-Behavioral Techniques,  $F(1, 608) = 27.51$ ,  $p < .001$ , partial  $\eta^2 = .04$ , and Physical Rehabilitation Techniques,  $F(1, 608) = 8.79$ ,  $p < .01$ , partial  $\eta^2 = .01$  (Cognitive-Behavioral Techniques,  $M = 2.98$ ,  $SD = 0.90$ ,  $d = 0.47$ ; Physical Rehabilitation Techniques,  $M = 4.50$ ,  $SD = 0.53$ ,  $d = 0.28$ ), compared to athletic trainers who had not

Table 11

*MANOVA Results for Perceived Competency in Psychosocial Interventions: Main Effect for Sport and Exercise Psychology Coursework Taken*

Effect	One or more classes ( <i>n</i> = 520)		No classes ( <i>n</i> = 92)		$\lambda$	<i>F</i>	partial $\eta^2$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Main effect for sport psychology coursework taken					.99	2.72	.01
Univariate effects							
Cognitive-Behavioral Techniques factor	2.89	0.91	2.63	0.87		6.74	.01
Physical Rehabilitation Techniques factor	4.46	0.55	4.45	0.54		0.08	.000
Supportive Interventions factor	4.07	0.71	4.00	0.81		0.95	.002

*Note.* Scores range from 1, *not at all competent*, to 5, *extremely competent*.



taken a course in this area (Cognitive-Behavioral Techniques,  $M = 2.56$ ,  $SD = 0.86$ ; Physical Rehabilitation Techniques,  $M = 4.35$ ,  $SD = 0.55$ ) (see Table 12). Taking a course in psychology of injury did not significantly impact athletic trainers' feelings of competency in providing Supportive Interventions, however,  $F(1, 608) = 5.01$ ,  $p = .03$ , partial  $\eta^2 = .008$ .

For coursework in abnormal psychology/psychopathology, the athletic trainer gender by coursework taken interaction also was nonsignificant, Wilks'  $\lambda = .99$ ,  $F(3, 606) = 0.51$ ,  $p = .68$ , partial  $\eta^2 = .003$ , but the main effect for coursework taken was significant, Wilks'  $\lambda = .95$ ,  $F(3, 606) = 10.29$ ,  $p < .001$ , partial  $\eta^2 = .05$ . Univariate analyses indicated that athletic trainers who took coursework in abnormal psychology/psychopathology felt significantly more competent in providing Cognitive-Behavioral Techniques,  $F(1, 608) = 24.62$ ,  $p < .001$ , partial  $\eta^2 = .04$ , Physical Rehabilitation Techniques,  $F(1, 608) = 15.32$ ,  $p < .001$ , partial  $\eta^2 = .03$ , and Supportive Interventions,  $F(1, 608) = 13.40$ ,  $p < .001$ , partial  $\eta^2 = .02$  (Cognitive-Behavioral Techniques,  $M = 3.03$ ,  $SD = 0.92$ ,  $d = 0.43$ ; Physical Rehabilitation Techniques,  $M = 4.54$ ,  $SD = 0.52$ ,  $d = 0.33$ ; Supportive Interventions,  $M = 4.17$ ,  $SD = 0.70$ ,  $d = 0.31$ ) compared to athletic trainers who had not taken coursework in this area (Cognitive-Behavioral Techniques,  $M = 2.65$ ,  $SD = 0.86$ ; Physical Rehabilitation Techniques,  $M = 4.37$ ,  $SD = 0.56$ ; Supportive Interventions,  $M = 3.95$ ,  $SD = 0.74$ ) (see Table 13).

Finally, for coursework in counseling skills and techniques, the athletic trainer gender by coursework taken interaction again was nonsignificant, Wilks'  $\lambda = .99$ ,  $F(3, 606) = 0.98$ ,  $p = .41$ , partial  $\eta^2 = .005$ , but the main effect for coursework taken was

Table 12

*MANOVA Results for Perceived Competency in Psychosocial Interventions: Main Effect for Psychology of Injury/Rehabilitation in Sport Coursework Taken*

Effect	One or more classes ( <i>n</i> = 432)		No classes ( <i>n</i> = 180)		$\lambda$	<i>F</i>	partial $\eta^2$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Main effect for psychology of injury coursework taken					.95	10.53**	.05
Univariate effects							
Cognitive-Behavioral Techniques factor	2.98	0.90	2.56	0.86		27.51**	.04
Physical Rehabilitation Techniques factor	4.50	0.53	4.35	0.55		8.79*	.01
Supportive Interventions factor	4.11	0.73	3.96	0.72		5.01	.008

*Note.* Scores range from 1, *not at all competent*, to 5, *extremely competent*.

\**p* < .01, \*\**p* < .001

Table 13

*MANOVA Results for Perceived Competency in Psychosocial Interventions: Main Effect for Abnormal Psychology/Psychopathology Coursework Taken*

Effect	One or more classes ( <i>n</i> = 327)		No classes ( <i>n</i> = 285)		$\lambda$	<i>F</i>	partial $\eta^2$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Main effect for coursework taken					.95	10.29**	.05
Univariate effects							
Cognitive-Behavioral Techniques factor	3.03	0.92	2.65	0.86		24.62**	.04
Physical Rehabilitation Techniques factor	4.54	0.52	4.46	0.54		15.32**	.03
Supportive Interventions factor	4.17	0.70	3.95	0.74		13.40**	.02

*Note.* Scores range from 1, *not at all competent*, to 5, *extremely competent*.

\**p* < .01, \*\**p* < .001

significant, Wilks'  $\lambda = .91$ ,  $F(3, 606) = 18.98$ ,  $p < .001$ , partial  $\eta^2 = .09$ . Univariate analyses indicated that athletic trainers who took coursework in counseling skills and techniques felt significantly more competent in providing Cognitive-Behavioral Techniques,  $F(1, 608) = 53.85$ ,  $p < .001$ , partial  $\eta^2 = .08$ , Physical Rehabilitation Techniques,  $F(1, 608) = 14.13$ ,  $p < .001$ , partial  $\eta^2 = .02$ , and Supportive Interventions,  $F(1, 608) = 14.88$ ,  $p < .001$ , partial  $\eta^2 = .02$  (Cognitive-Behavioral Techniques,  $M = 3.18$ ,  $SD = 0.93$ ,  $d = 0.63$ ; Physical Rehabilitation Techniques,  $M = 4.56$ ,  $SD = 0.50$ ,  $d = 0.32$ ; Supportive Interventions,  $M = 4.20$ ,  $SD = 0.71$ ,  $d = 0.32$ ) compared to athletic trainers who had not taken coursework in this area (Cognitive-Behavioral Techniques,  $M = 2.63$ ,  $SD = 0.82$ ; Physical Rehabilitation Techniques,  $M = 4.39$ ,  $SD = 0.56$ ; Supportive Interventions,  $M = 3.97$ ,  $SD = 0.73$ ) (see Table 14).

#### Problem Ratings

The 2 (athletic trainer gender) x 2 (athlete gender) x 3 (presenting problem) MANOVA conducted with problem ratings as the dependent variables revealed no significant 3-way, Wilks'  $\lambda = .99$ ,  $F(6, 1252) = 0.52$ ,  $p = .79$ , partial  $\eta^2 = .003$ , or 2-way interactions [for athletic trainer gender by athlete gender, Wilks'  $\lambda = .99$ ,  $F(3, 626) = 0.53$ ,  $p = .66$ , partial  $\eta^2 = .003$ ; for athletic trainer gender by presenting problem, Wilks'  $\lambda = .99$ ,  $F(6, 1252) = 0.88$ ,  $p = .51$ , partial  $\eta^2 = .004$ ; and for athlete gender by presenting problem, Wilks'  $\lambda = .99$ ,  $F(6, 1252) = 0.61$ ,  $p = .72$ , partial  $\eta^2 = .003$ ]. Additionally, there were no significant main effects for athletic trainer gender, Wilks'  $\lambda = .99$ ,  $F(3, 626) = 1.17$ ,  $p = .32$ , partial  $\eta^2 = .006$ , or athlete gender, Wilks'  $\lambda = .99$ ,  $F(3, 626) = 0.47$ ,  $p = .70$ , partial  $\eta^2 = .002$ , indicating that the athletic trainers' perceptions

Table 14

*MANOVA Results for Perceived Competency in Psychosocial Interventions: Main Effect for Counseling Skills and Techniques Coursework Taken*

Effect	One or more classes ( <i>n</i> = 247)		No classes ( <i>n</i> = 365)		$\lambda$	<i>F</i>	partial $\eta^2$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Main effect for counseling skills coursework taken					.91	18.98**	.09
Univariate effects							
Cognitive-Behavioral Techniques factor	3.18	0.93	2.63	0.82		53.85**	.08
Physical Rehabilitation Techniques factor	4.56	0.50	4.39	0.56		14.13**	.02
Supportive Interventions factor	4.20	0.71	3.97	0.73		14.88**	.02

*Note.* Scores range from 1, *not at all competent*, to 5, *extremely competent*.

\**p* < .01, \*\**p* < .001

of the athletes' problems were not significantly influenced by their gender or the gender of the athlete. Instead, a significant main effect for presenting problem indicated that the athletic trainers accurately perceived the primary presenting problem of the athlete depicted in the vignette, Wilks'  $\lambda = .02$ ,  $F(6, 1252) = 1166.03$ ,  $p < .001$ , partial  $\eta^2 = .85$ . Univariate tests indicated that the effect occurred for every presenting problem: injury,  $F(2, 628) = 1065.16$ ,  $p < .001$ , partial  $\eta^2 = .77$ , performance,  $F(2, 628) = 127.65$ ,  $p < .001$ , partial  $\eta^2 = .29$ , and romantic relationship,  $F(2, 628) = 3250.35$ ,  $p < .001$ , partial  $\eta^2 = .91$ . Scheffé post hoc comparisons revealed that participants in the injury condition were significantly more likely to perceive the athlete to be experiencing an injury problem ( $M = 4.02$ ,  $SD = 0.89$ ) than a performance ( $M = 1.32$ ,  $SD = 0.61$ ,  $d = 3.46$ ) or romantic relationship problem ( $M = 1.25$ ,  $SD = 0.53$ ,  $d = 3.55$ ); there were no significant differences in their perceptions of the athlete having a performance or romantic relationship problem. Participants in the performance problem condition were significantly more likely to perceive the athlete to be experiencing a performance problem ( $M = 4.28$ ,  $SD = 0.77$ ) than an injury ( $M = 3.17$ ,  $SD = 1.34$ ,  $d = 1.0$ ) or romantic relationship problem ( $M = 2.49$ ,  $SD = 1.14$ ,  $d = 1.71$ ). Additionally, they were significantly more likely to perceive the athlete to be experiencing an injury problem ( $d = 0.49$ ) than a romantic relationship problem. Finally, participants in the romantic relationship condition were significantly more likely to perceive the athlete to be experiencing a relationship problem ( $M = 4.53$ ,  $SD = 0.62$ ) versus an injury ( $M = 1.10$ ,  $SD = 0.37$ ,  $d = 6.0$ ) or performance problem ( $M = 1.16$ ,  $SD = 0.49$ ,  $d = 5.81$ ); there

were no significant differences in their perceptions of the athlete having an injury or performance problem.

### Symptom Ratings

Overall, the athletic trainers were accurate in identifying symptoms of depression in the athlete, as the results of the one-way ANOVA,  $F(2, 1917) = 1693.77, p < .001$ , and post hoc Scheffé analyses indicated that they rated the athlete significantly higher on the Depressive Symptoms factor ( $M = 3.66, SD = 0.61$ ) than on the Anger/Agitation Symptoms factor ( $M = 3.21, SD = 0.81, d = 0.63$ ) or Compulsive Behavioral Symptoms factor ( $M = 1.51, SD = 0.67, d = 3.36$ ). Additionally, they rated the athlete significantly higher on the Anger/Agitation Symptoms factor ( $d = 2.30$ ) than on the Compulsive Behavioral Symptoms factor. Despite their overall accuracy in identifying depressive symptoms, however, statistical analyses revealed significant differences in symptom ratings depending upon the gender of the athletic trainer and the athlete's type of presenting problem.

The 2 (athletic trainer gender) x 2 (athlete gender) x 3 (presenting problem) MANOVA revealed no significant 3-way, Wilks'  $\lambda = .99, F(6, 1252) = 1.14, p = .34$ , partial  $\eta^2 = .005$ , or 2-way interactions [for athletic trainer gender by athlete gender, Wilks'  $\lambda = .99, F(3, 626) = 0.32, p = .81$ , partial  $\eta^2 = .002$ ; for athletic trainer gender by presenting problem, Wilks'  $\lambda = .99, F(6, 1252) = 0.42, p = .87$ , partial  $\eta^2 = .002$ ; and for athlete gender by presenting problem, Wilks'  $\lambda = .99, F(6, 1252) = 0.37, p = .90$ , partial  $\eta^2 = .002$ ]; however, there were significant main effects for athletic trainer gender, Wilks'  $\lambda = .96, F(3, 626) = 8.61, p < .001$ , partial  $\eta^2 = .04$ , and presenting

problem, Wilks'  $\lambda = .95$ ,  $F(6, 1252) = 5.11$ ,  $p < .001$ , partial  $\eta^2 = .02$ . The main effect for athlete gender was nonsignificant, Wilks'  $\lambda = .98$ ,  $F(3, 626) = 3.30$ ,  $p = .02$ , partial  $\eta^2 = .02$ . Tables 15 through 17 list the mean scores, standard deviations, and MANOVA/ANOVA results for each main effect.

Univariate analyses indicated that compared to the male athletic trainers ( $M = 3.56$ ,  $SD = 0.59$ ), female athletic trainers ( $M = 3.73$ ,  $SD = 0.61$ ,  $d = 0.28$ ) rated the athlete significantly higher on the Depressive Symptoms factor,  $F(1, 628) = 13.61$ ,  $p < .001$ , partial  $\eta^2 = .02$ . There were no significant differences between male and female athletic trainers on the Anger/Agitation Symptoms factor,  $F(1, 628) = 1.13$ ,  $p = .29$ , partial  $\eta^2 = .002$ , or the Compulsive Behavioral Symptoms factor,  $F(1, 628) = 2.88$ ,  $p = .09$ , partial  $\eta^2 = .005$ .

In terms of presenting problem, univariate analyses revealed significant differences in symptom ratings depending upon the athlete's presenting problem for the Anger/Agitation Symptoms factor,  $F(2, 628) = 6.24$ ,  $p < .01$ , partial  $\eta^2 = .02$ . Scheffé post hoc analyses indicated that the injured athlete ( $M = 3.37$ ,  $SD = 0.83$ ,  $d = 0.36$ ) was rated significantly higher in Anger/Agitation Symptoms than the athlete experiencing a performance problem ( $M = 3.07$ ,  $SD = 0.84$ ). There were no significant differences in Anger/Agitation Symptom ratings between the injured athlete and the athlete experiencing a romantic relationship problem ( $M = 3.19$ ,  $SD = 0.74$ ), or between the athlete experiencing a romantic relationship problem and the athlete experiencing a performance problem.



Table 15

*MANOVA Results for Symptom Ratings: Main Effect for Athletic Trainer Gender*

Effect	Male ( <i>n</i> = 270)		Female ( <i>n</i> = 370)		$\lambda$	<i>F</i>	partial $\eta^2$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Main effect for athletic trainer gender					.96	8.61**	.04
Univariate effects							
Depressive Symptoms factor	3.56	0.59	3.73	0.61		13.61**	.02
Anger/Agitation Symptoms factor	3.24	0.78	3.19	0.82		1.13	.002
Compulsive Behavioral Symptoms factor	1.56	0.74	1.47	0.61		2.88	.005

*Note.* Scores range from 1, *not at all*, to 5, *extremely*.

\**p* < .01, \*\**p* < .001

Table 16

*MANOVA Results for Symptom Ratings: Main Effect for Athlete Gender*

Effect	Male ( <i>n</i> = 341)		Female ( <i>n</i> = 299)		$\lambda$	<i>F</i>	partial $\eta^2$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Main effect for athlete gender					.98	3.30	.02
Univariate effects							
Depressive Symptoms factor	3.67	0.61	3.64	0.60		0.53	.001
Anger/Agitation Symptoms factor	3.28	0.80	3.14	0.81		4.03	.006
Compulsive Behavioral Symptoms factor	1.58	0.71	1.42	0.61		7.88*	.01

*Note.* Scores range from 1, *not at all*, to 5, *extremely*.

\**p* < .01

Table 17

*MANOVA Results for Symptom Ratings: Main Effect for Presenting Problem*

Effect	Injury Problem ( <i>n</i> = 212)		Performance Problem ( <i>n</i> = 179)		Relationship Problem ( <i>n</i> = 249)		$\lambda$	<i>F</i>	partial $\eta^2$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Main effect for presenting problem							.95	5.11**	.02
Univariate effects									
Depressive Symptoms factor	3.60	0.62	3.64	0.62	3.71	0.58		2.71	.009
Anger/Agitation Symptoms factor	3.37 <sup>a</sup>	0.83	3.07 <sup>b</sup>	0.84	3.19 <sup>a,b</sup>	0.74		6.24*	.02
Compulsive Behavioral Symptoms factor	1.44	0.55	1.55	0.73	1.54	0.70		2.34	.007

*Note.* Scores range from 1, *not at all*, to 5, *extremely*. Means with different subscripts are significantly different at  $p < .01$  according to the Scheffé post hoc comparison.

\* $p < .01$ , \*\* $p < .001$

## Diagnosis Ratings

Overall, regardless of athlete gender, their own gender, or the athlete's presenting problem, the athletic trainers were accurate in their assessment of the athlete's likely diagnosis, as the results of the one-way ANOVA,  $F(4, 3195) = 656.06$ ,  $p < .001$ , and post hoc Scheffé analyses indicated that the athletic trainers rated the athlete as significantly more likely to be experiencing a depressive disorder ( $M = 4.15$ ,  $SD = 0.93$ ) compared to an adjustment disorder ( $M = 3.60$ ,  $SD = 1.06$ ,  $d = 0.55$ ), anxiety disorder ( $M = 2.76$ ,  $SD = 1.12$ ,  $d = 1.35$ ), sleep disorder ( $M = 2.47$ ,  $SD = 1.16$ ,  $d = 1.60$ ), or substance abuse disorder ( $M = 1.51$ ,  $SD = 0.72$ ,  $d = 3.18$ ). Post hoc analyses indicated that each diagnosis rating was significantly different from the other; the athlete also was rated significantly more likely to be experiencing an adjustment disorder compared to an anxiety ( $d = 0.77$ ), sleep ( $d = 1.02$ ), or substance abuse disorder ( $d = 2.30$ ), significantly more likely to be experiencing an anxiety disorder compared to a sleep ( $d = 0.25$ ) or substance abuse disorder ( $d = 1.33$ ), and significantly more likely to be experiencing a sleep disorder compared to a substance abuse disorder ( $d = 0.99$ ).

The 2 (athletic trainer gender) x 2 (athlete gender) x 3 (presenting problem) MANOVA indicated that there were no significant differences in diagnosis ratings based upon the gender of the athletic trainer, the gender of the athlete, or the athlete's type of presenting problem (see Tables 18 through 20). The 3-way interaction was nonsignificant, Wilks'  $\lambda = .99$ ,  $F(10, 1248) = 0.39$ ,  $p = .95$ , partial  $\eta^2 = .003$ , as well as the athletic trainer gender by athlete gender interaction, Wilks'  $\lambda = .99$ ,  $F(5, 624) =$

Table 18

*MANOVA Results for Diagnosis Ratings: Main Effect for Athletic Trainer Gender*

Effect	Male ( <i>n</i> = 270)		Female ( <i>n</i> = 370)		$\lambda$	<i>F</i>	partial $\eta^2$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Main effect for athletic trainer gender					.98	2.34	.02
Univariate effects							
Anxiety disorder	2.86	1.09	2.69	1.14		3.69	.006
Sleep disorder	2.49	1.21	2.45	1.12		0.19	.000
Adjustment disorder	3.61	1.07	3.58	1.05		0.70	.001
Depressive disorder	4.04	0.91	4.23	0.94		6.21	.01
Substance disorder	1.52	0.72	1.50	0.73		0.35	.001

*Note.* Scores range from 1, *not at all likely*, to 5, *extremely likely*.

Table 19

*MANOVA Results for Diagnosis Ratings: Main Effect for Athlete Gender*

Effect	Male ( <i>n</i> = 341)		Female ( <i>n</i> = 299)		$\lambda$	<i>F</i>	partial $\eta^2$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Main effect for athlete gender					.98	2.75	.02
Univariate effects							
Anxiety disorder	2.83	1.13	2.69	1.11		2.31	.004
Sleep disorder	2.53	1.19	2.40	1.11		2.47	.004
Adjustment disorder	3.66	0.98	3.53	1.14		0.40	.001
Depressive disorder	4.13	0.92	4.17	0.95		0.73	.001
Substance disorder	1.60	0.74	1.41	0.69		11.12*	.02

*Note.* Scores range from 1, *not at all likely*, to 5, *extremely likely*.

\**p* < .01

Table 20

*MANOVA Results for Diagnosis Ratings: Main Effect for Presenting Problem*

Effect	Injury Problem ( <i>n</i> = 212)		Performance Problem ( <i>n</i> = 179)		Relationship Problem ( <i>n</i> = 249)		$\lambda$	<i>F</i>	partial $\eta^2$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Main effect for presenting problem							.97	2.05	.02
Univariate effects									
Anxiety disorder	2.83	1.12	2.86	1.12	2.63	1.12		2.40	.008
Sleep disorder	2.51	1.17	2.44	1.14	2.45	1.16		0.26	.001
Adjustment disorder	3.61	1.02	3.77	0.98	3.46	1.13		5.02*	.02
Depressive disorder	4.16	0.90	4.18	0.91	4.12	0.97		0.15	.000
Substance disorder	1.43	0.60	1.50	0.75	1.50	0.75		2.43	.008

*Note.* Scores range from 1, *not at all likely*, to 5, *extremely likely*.

\**p* < .01

1.78,  $p = .11$ , partial  $\eta^2 = .01$ , the athletic trainer gender by presenting problem interaction, Wilks'  $\lambda = .98$ ,  $F(10, 1248) = 1.03$ ,  $p = .42$ , partial  $\eta^2 = .008$ , and the athlete gender by presenting problem interaction, Wilks'  $\lambda = .98$ ,  $F(10, 1248) = 1.17$ ,  $p = .31$ , partial  $\eta^2 = .009$ . The main effects for athletic trainer gender, Wilks'  $\lambda = .98$ ,  $F(5, 624) = 2.34$ ,  $p = .04$ , partial  $\eta^2 = .02$ , athlete gender, Wilks'  $\lambda = .98$ ,  $F(5, 624) = 2.75$ ,  $p = .02$ , partial  $\eta^2 = .02$ , and presenting problem, Wilks'  $\lambda = .97$ ,  $F(10, 1248) = 2.05$ ,  $p = .03$ , partial  $\eta^2 = .02$ , also were nonsignificant. Thus, the athletic trainers' gender, the athlete's gender, and the athlete's presenting problem did not significantly influence athletic trainers' decisions regarding diagnosis.

#### Referral Ratings

The one-way ANOVA was significant,  $F(7, 5112) = 688.95$ ,  $p < .001$ , indicating that there were significant differences in the types of referrals the athletic trainers reported they would provide for the athlete. Post hoc analyses suggested that, overall, the athletic trainers were more likely to refer the athlete to a mental health professional compared to other health professionals, the coach, treating the athlete themselves, or "doing nothing." Specifically, they provided significantly higher referral ratings for the counselor/psychologist ( $M = 4.43$ ,  $SD = 0.82$ ) compared to the sport psychology consultant ( $M = 3.57$ ,  $SD = 1.32$ ,  $d = 0.78$ ), psychiatrist ( $M = 2.69$ ,  $SD = 1.36$ ,  $d = 1.55$ ), physician ( $M = 2.50$ ,  $SD = 1.34$ ,  $d = 1.74$ ), coach ( $M = 2.44$ ,  $SD = 1.24$ ,  $d = 1.90$ ), treating the athlete themselves ( $M = 2.04$ ,  $SD = 1.05$ ,  $d = 2.26$ ), physical therapist ( $M = 1.28$ ,  $SD = 0.71$ ,  $d = 4.09$ ), or doing nothing ( $M = 1.04$ ,  $SD = 0.26$ ,  $d = 5.56$ ); significantly higher referral ratings for the sport psychology consultant compared



to the psychiatrist ( $d = 0.66$ ), physician ( $d = 0.80$ ), coach ( $d = 0.88$ ), physical therapist ( $d = 2.16$ ), treating the athlete themselves ( $d = 1.29$ ), or doing nothing ( $d = 2.66$ ); and significantly higher referral ratings for the psychiatrist compared to the physical therapist ( $d = 1.31$ ), treating the athlete themselves ( $d = 0.54$ ), or doing nothing ( $d = 1.68$ ). There were no significant differences between referrals to the psychiatrist compared to the physician or coach. Among the other professionals, the athletic trainers were more likely to refer the athlete to a physician or a coach compared to a physical therapist (physician,  $d = 1.14$ ; coach,  $d = 1.15$ ), treating the athlete themselves (physician,  $d = 0.38$ ; coach,  $d = 0.35$ ), or doing nothing (physician,  $d = 1.51$ ; coach,  $d = 1.56$ ). There were no significant differences between referrals to a physician or coach. Finally, the athletic trainers were significantly more likely to treat the athlete themselves compared to referring the athlete to a physical therapist ( $d = 0.84$ ) or doing nothing ( $d = 1.32$ ), but there were no significant differences between referral to a physical therapist or doing nothing. They were significantly less likely to refer to a physical therapist or do nothing compared to all other referral options.

Regarding comparisons among the independent variables, the 2 (athletic trainer gender) x 2 (athlete gender) x 3 (presenting problem) MANOVA indicated that the 3-way interaction was nonsignificant, Wilks'  $\lambda = .98$ ,  $F(16, 1242) = 0.63$ ,  $p = .86$ , partial  $\eta^2 = .008$ , as well as the 2-way interactions between athletic trainer gender and athlete gender, Wilks'  $\lambda = .99$ ,  $F(8, 621) = 1.18$ ,  $p = .31$ , partial  $\eta^2 = .02$ , and between athletic trainer gender and presenting problem, Wilks'  $\lambda = .98$ ,  $F(16, 1242) = 0.93$ ,  $p = .54$ , partial  $\eta^2 = .01$ . The athlete gender by presenting problem interaction was significant,

however, Wilks'  $\lambda = .95$ ,  $F(16, 1242) = 2.16$ ,  $p < .01$ , partial  $\eta^2 = .03$ , as well as the main effect for presenting problem, Wilks'  $\lambda = .71$ ,  $F(16, 1242) = 14.75$ ,  $p < .001$ , partial  $\eta^2 = .16$ . There were no significant main effects for athletic trainer gender, Wilks'  $\lambda = .98$ ,  $F(8, 621) = 1.82$ ,  $p = .07$ , partial  $\eta^2 = .02$  (see Table 21), or athlete gender, Wilks'  $\lambda = .98$ ,  $F(8, 621) = 1.38$ ,  $p = .20$ , partial  $\eta^2 = .02$  (see Table 22).

Univariate analyses revealed that the athlete gender by presenting problem interaction was significant only for referral to a sport psychology consultant,  $F(2, 628) = 5.78$ ,  $p < .005$ , partial  $\eta^2 = .02$ . The interaction was not significant for referral to the coach,  $F(2, 628) = 1.09$ ,  $p = .34$ , partial  $\eta^2 = .003$ , counselor/psychologist,  $F(2, 628) = 2.89$ ,  $p = .06$ , partial  $\eta^2 = .009$ , physical therapist,  $F(2, 628) = 1.04$ ,  $p = .35$ , partial  $\eta^2 = .003$ , physician,  $F(2, 628) = 2.30$ ,  $p = .10$ , partial  $\eta^2 = .007$ , or psychiatrist,  $F(2, 628) = 0.46$ ,  $p = .63$ , partial  $\eta^2 = .001$ , nor for treating the athlete him or herself,  $F(2, 628) = 0.60$ ,  $p = .55$ , partial  $\eta^2 = .002$ , or "doing nothing,"  $F(2, 628) = 2.20$ ,  $p = .11$ , partial  $\eta^2 = .007$ .

To further examine the athlete gender by presenting problem interaction for referral to a sport psychology consultant, an independent variable was created with six levels representing the six possible combinations of the interaction (i.e., male athlete with injury problem, male athlete with performance problem, male athlete with relationship problem, female athlete with injury problem, female athlete with performance problem, and female athlete with relationship problem). A one-way ANOVA was conducted with the new independent variable and referral ratings to the sport psychology consultant as the dependent variable. The ANOVA was significant,  $F(5,$

Table 21

*MANOVA Results for Referral Ratings: Main Effect for Athletic Trainer Gender*

Effect	Male ( <i>n</i> = 270)		Female ( <i>n</i> = 370)		$\lambda$	<i>F</i>	partial $\eta^2$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Main effect for athletic trainer gender					.98	1.82	.02
Univariate effects							
Coach/assistant coach	2.44	1.29	2.44	1.21		0.08	.000
Counselor/psychologist	4.29	0.88	4.52	0.76		12.27**	.02
Physical therapist	1.26	0.70	1.30	0.71		0.05	.000
Physician	2.47	1.35	2.52	1.34		0.06	.000
Psychiatrist	2.65	1.31	2.72	1.39		0.60	.001
Sport psychology consultant	3.50	1.31	3.62	1.32		0.57	.001
Treat athlete him/herself	2.09	1.07	2.01	1.04		1.36	.002
Do nothing	1.06	0.33	1.02	0.18		3.33	.005

*Note.* Scores range from 1, *not at all likely*, to 5, *extremely likely*.

\**p* < .01, \*\**p* < .001

Table 22

*MANOVA Results for Referral Ratings: Main Effect for Athlete Gender*

Effect	Male ( <i>n</i> = 341)		Female ( <i>n</i> = 299)		$\lambda$	<i>F</i>	partial $\eta^2$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Main effect for athlete gender					.98	1.38	.02
Univariate effects							
Coach/assistant coach	2.48	1.24	2.39	1.25		0.94	.001
Counselor/psychologist	4.35	0.87	4.51	0.74		6.64	.01
Physical therapist	1.33	0.75	1.23	0.64		1.95	.003
Physician	2.51	1.33	2.48	1.36		0.05	.000
Psychiatrist	2.65	1.35	2.74	1.36		0.96	.002
Sport psychology consultant	3.55	1.40	3.59	1.22		0.33	.001
Treat athlete him/herself	2.13	1.10	1.94	0.98		4.12	.007
Do nothing	1.04	0.26	1.03	0.26		0.99	.002

*Note.* Scores range from 1, *not at all likely*, to 5, *extremely likely*.

634) = 14.17,  $p < .001$ , and post hoc Scheffé analyses revealed that the athletic trainers were significantly less likely to refer the male athlete experiencing a romantic relationship problem ( $M = 2.89$ ,  $SD = 1.45$ ) to a sport psychology consultant compared to a male or female athlete experiencing an injury (male athlete,  $M = 3.72$ ,  $SD = 1.35$ ,  $d = 0.59$ ; female athlete,  $M = 3.91$ ,  $SD = 1.17$ ,  $d = 0.77$ ) or performance problem (male athlete,  $M = 4.12$ ,  $SD = 1.07$ ,  $d = 0.95$ ; female athlete,  $M = 3.71$ ,  $SD = 1.26$ ,  $d = 0.59$ ), whereas they were significantly less likely to refer the female athlete experiencing a romantic relationship problem ( $M = 3.29$ ,  $SD = 1.16$ ) compared to a male athlete with a performance problem only ( $M = 4.12$ ,  $SD = 1.07$ ,  $d = 0.74$ ). There were no significant differences in sport psychology consultant referrals between the injured male athlete ( $M = 3.72$ ,  $SD = 1.35$ ) and the female athlete with an injury ( $M = 3.91$ ,  $SD = 1.17$ ), performance ( $M = 3.71$ ,  $SD = 1.26$ ), or romantic relationship ( $M = 3.29$ ,  $SD = 1.16$ ), problem, or between the injured male athlete ( $M = 3.72$ ,  $SD = 1.35$ ) and the male athlete experiencing a performance problem ( $M = 4.12$ ,  $SD = 1.07$ ). There also were no significant differences between the male athlete experiencing a performance problem ( $M = 4.12$ ,  $SD = 1.07$ ) and the female athlete experiencing an injury ( $M = 3.91$ ,  $SD = 1.17$ ) or performance ( $M = 3.71$ ,  $SD = 1.26$ ) problem, or between the male and female athlete experiencing a romantic relationship problem (male athlete,  $M = 2.89$ ,  $SD = 1.45$ ; female athlete,  $M = 3.29$ ,  $SD = 1.16$ ). Finally, for the female athlete only, there were no significant differences in referral to a sport psychology consultant based upon the type of presenting problem.

Follow-up univariate analyses for the main effect of presenting problem revealed significant differences in referral ratings depending upon the athlete's presenting problem for referrals to a counselor/psychologist,  $F(2, 628) = 5.72, p < .01$ , partial  $\eta^2 = .02$ , psychiatrist,  $F(2, 628) = 5.01, p < .01$ , partial  $\eta^2 = .02$ , sport psychology consultant,  $F(2, 628) = 28.98, p < .001$ , partial  $\eta^2 = .08$ , physician,  $F(2, 628) = 17.62, p < .001$ , partial  $\eta^2 = .05$ , and physical therapist,  $F(2, 628) = 51.74, p < .001$ , partial  $\eta^2 = .14$ , as well as the decision to treat the athlete him or herself,  $F(2, 628) = 15.49, p < .001$ , partial  $\eta^2 = .05$  (see Table 23). Only the presenting problem main effects for referral to the coach,  $F(2, 628) = 1.21, p = .30$ , partial  $\eta^2 = .004$ , and "doing nothing,"  $F(2, 628) = 0.87, p = .42$ , partial  $\eta^2 = .003$ , were nonsignificant.

Scheffé post hoc comparisons indicated that for referral to a counselor/psychologist, the athletic trainers were significantly less likely to refer the injured athlete ( $M = 4.29, SD = 0.96$ ) compared to the athlete with a romantic relationship problem ( $M = 4.52, SD = 0.72, d = 0.27$ ). There were no significant differences in referral to a counselor/psychologist between the athlete with a performance problem ( $M = 4.46, SD = 0.74$ ) and the athletes with injury or relationship problems. For referral to a psychiatrist, Scheffé post hoc analyses were significant at the  $p < .05$  level, but not at the  $p < .01$  level. At the  $p < .05$  level, the athletic trainers were significantly less likely to refer the injured athlete ( $M = 2.45, SD = 1.37$ ) to a psychiatrist compared to the athletes with performance ( $M = 2.80, SD = 1.29, d = 0.26$ ) or relationship ( $M = 2.81, SD = 1.37, d = 0.26$ ) problems. There were no significant differences between referrals to a psychiatrist for the athletes with

Table 23

*MANOVA Results for Referral Ratings: Main Effect for Presenting Problem*

Effect	Injury Problem ( <i>n</i> = 212)		Performance Problem ( <i>n</i> = 179)		Relationship Problem ( <i>n</i> = 249)		$\lambda$	<i>F</i>	partial $\eta^2$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Main effect for presenting problem							.71	14.75**	.16
Univariate effects									
Coach/assistant coach	2.53	1.30	2.44	1.22	2.35	1.21		1.21	.004
Counselor/psychologist	4.29 <sup>a</sup>	0.96	4.46 <sup>a,b</sup>	0.74	4.52 <sup>b</sup>	0.72		5.72*	.02
Physical therapist	1.67 <sup>a</sup>	1.01	1.11 <sup>b</sup>	0.42	1.07 <sup>b</sup>	0.30		51.74**	.14
Physician	2.82 <sup>a</sup>	1.33	2.66 <sup>a</sup>	1.35	2.11 <sup>b</sup>	1.25		17.62**	.05
Psychiatrist	2.45	1.37	2.80	1.29	2.81	1.37		5.01*	.02
Sport psychology consultant	3.81 <sup>a</sup>	1.27	3.94 <sup>a</sup>	1.17	3.10 <sup>b</sup>	1.32		29.98**	.08
Treat athlete him/herself	2.32 <sup>a</sup>	1.14	1.73 <sup>b</sup>	0.83	2.03 <sup>a,b</sup>	1.05		15.49**	.05
Do nothing	1.04	0.24	1.02	0.18	1.05	0.31		0.87	.003

*Note.* Scores range from 1, *not at all likely*, to 5, *extremely likely*. Means with different subscripts are significantly different at  $p < .01$  according to the Scheffé post hoc comparison.

\* $p < .01$ , \*\* $p < .001$

performance or relationship problems. Post hoc analyses for referral to a sport psychology consultant indicated that the athletic trainers were significantly less likely to refer the athlete with a relationship problem ( $M = 3.10$ ,  $SD = 1.32$ ) compared to the athletes with injury ( $M = 3.81$ ,  $SD = 1.27$ ,  $d = 0.55$ ) or performance ( $M = 3.94$ ,  $SD = 1.17$ ,  $d = 0.67$ ) problems, and there were no significant differences in referrals between the athletes with injury and performance problems.

For the most part, athletic trainers were less likely to refer the athlete experiencing a relationship problem to professionals providing physical treatments (i.e., a physician or physical therapist) compared to the athletes experiencing injury or performance problems. Specifically, the athletic trainers were significantly less likely to refer the athlete with a relationship problem ( $M = 2.11$ ,  $SD = 1.25$ ) to a physician compared to the athletes experiencing injury ( $M = 2.82$ ,  $SD = 1.33$ ,  $d = 0.55$ ) or performance ( $M = 2.66$ ,  $SD = 1.35$ ,  $d = 0.42$ ) problems, and there were no significant differences in referrals between the athletes experiencing injury or performance problems. For the physical therapist, athletic trainers were significantly less likely to refer both the athlete with a relationship problem ( $M = 1.07$ ,  $SD = 0.30$ ,  $d = 0.92$ ) and the athlete with a performance problem ( $M = 1.11$ ,  $SD = 0.42$ ,  $d = 0.78$ ) compared to the athlete with an injury ( $M = 1.67$ ,  $SD = 1.01$ ). There were no significant differences in physical therapist referrals between the athletes experiencing relationship or performance problems. Finally, the athletic trainers were significantly more likely to treat the injured athlete ( $M = 2.32$ ,  $SD = 1.14$ ) themselves compared to the athlete with a performance problem ( $M = 1.73$ ,  $SD = 0.83$ ,  $d = 0.60$ ), and at the  $p < .05$  level,



were significantly more likely to treat the injured athlete compared to the athlete with a relationship problem ( $M = 2.03$ ,  $SD = 1.05$ ,  $d = 0.26$ ), as well as the athlete with a relationship problem compared to the athlete with a performance problem ( $d = 0.32$ ).

In response to the open-ended question regarding their recommendations for referral, most athletic trainers indicated that they would refer the athlete to a mental health professional (26.1%) or described how they would take a team approach to managing the athlete's case by outlining the roles each professional on the sportsmedicine team (e.g., physician, counselor/psychologist, coach) would take with the athlete (21.0%). Many athletic trainers specifically mentioned the necessity of further assessment and/or treatment of the athlete's depression and/or suicidal ideation (14.5%), and some indicated that a referral was necessary because treatment of the athlete was beyond the scope of their expertise (8.9%). See Table 24 for a complete description of the athletic trainers' referral recommendations categorized by presenting problem.

#### Use of Psychosocial Strategies/Techniques

A total of 172 participants (26.9%; 76 males, 96 females) indicated that they were *somewhat likely* to *extremely likely* to treat the athlete in the vignette him or herself and completed the psychosocial interventions questionnaire. Each of these participants completed the 10-item questionnaire, with participants responding to the injured athlete vignette completing an additional two items pertaining to injury rehabilitation. Given the low number of participants in the performance problem condition ( $n = 30$ ) completing the 10-item questionnaire compared to the injury ( $n =$

Table 24

*Numbers, Percentages, and Rank Orders of Open-ended Responses for Referral Recommendations*

Category	Type of Presenting Problem								
	Injury Problem			Performance Problem			Relationship Problem		
	<i>n</i>	%	Rank	<i>n</i>	%	Rank	<i>n</i>	%	Rank
Indicated that he/she would provide a mental health referral.	36	25.2	1	31	23.8	1	50	28.6	1
Described the need for multidisciplinary treatment and/or how he/she would work in conjunction with other physical/mental health professionals.	30	21.0	2	27	20.8	2	37	21.1	2
Specifically mentioned that the athlete needed treatment/assessment of depression and/or suicidal ideation.	21	14.7	3	18	13.8	3	26	14.8	3
Described the need for referral due to limits in his/her competency to treat athlete.	15	10.5	4	14	10.8	4	11	6.3	6
Indicated that he/she would first refer the athlete to a physician to rule out physical causes of problem and/or let the physician decide if the athlete needed mental health treatment.	10	7.0	5	8	6.2	6	4	2.3	8
Described his/her policies and procedures for referral.	8	5.6	6	6	4.6	8	9	5.1	7

*Note.* Total number of individual responses within each type of presenting problem: Injury Problem,  $n = 143$ ; Performance Problem,  $n = 130$ ; Relationship Problem,  $n = 175$ .

*(table continues)*

Table 24 (*continued*).

	Type of Presenting Problem								
	Injury Problem			Performance Problem			Relationship Problem		
	<i>n</i>	%	Rank	<i>n</i>	%	Rank	<i>n</i>	%	Rank
Indicated that he/she would first try treating the athlete him/herself and then refer if the athlete's symptoms worsened or did not remit.	5	3.5	7	0	0.0	11	12	6.9	5
Described what he/she would say to the athlete (e.g., provided his/her conceptualization of problem, referral recommendations).	4	2.8	8	7	5.4	7	4	2.3	8
Indicated that he/she would further assess the athlete's psychological issues him/herself before making a referral.	4	2.8	8	4	3.1	9	4	2.3	8
Provided his/her conceptualization of the athlete's problem.	3	2.1	10	11	8.5	5	13	7.4	4
Described the need to involve the athlete's coach and/or parents.	3	2.1	10	4	3.1	9	1	0.6	13
Indicated that the athlete did not need specialized treatment at this time.	1	0.7	12	0	0.0	11	2	1.1	11
Described how he/she would work with the athlete on physical rehabilitation only.	1	0.7	12	0	0.0	11	0	0.0	14
Indicated that he/she would provide and/or encourage the athlete to seek support.	1	0.7	12	0	0.0	11	2	1.1	11
Indicated that he/she would help the athlete understand/make meaning of his/her situation.	1	0.7	12	0	0.0	11	0	0.0	14

*Note.* Total number of individual responses within each type of presenting problem: Injury Problem, *n* = 143; Performance Problem, *n* = 130; Relationship Problem, *n* = 175.

75) and relationship ( $n = 67$ ) conditions, and results mentioned previously indicating that the athletic trainers were significantly less likely to treat the athlete with a performance problem themselves compared to the athletes with injury (at the  $p < .01$  level) or romantic relationship problems (at the  $p < .05$  level), participants in the performance problem condition were excluded from the subsequent analyses.

Overall, the athletic trainers were significantly more likely to use Supportive Interventions ( $M = 4.54$ ,  $SD = 0.58$ ) than Cognitive-Behavioral Techniques ( $M = 3.10$ ,  $SD = 0.86$ ,  $d = 2.0$ ) with the athletes,  $t(286) = -16.73$ ,  $p < .001$ . When analyzing the effects of the independent variables, the 2 (athletic trainer gender) x 2 (athlete gender) x 2 (presenting problem) MANOVA revealed nonsignificant results. The 3-way interaction, Wilks'  $\lambda = .99$ ,  $F(2, 133) = 0.77$ ,  $p = .46$ , partial  $\eta^2 = .01$ , athletic trainer gender by athlete gender interaction, Wilks'  $\lambda = .99$ ,  $F(2, 133) = 0.52$ ,  $p = .60$ , partial  $\eta^2 = .008$ , athletic trainer gender by presenting problem interaction, Wilks'  $\lambda = .99$ ,  $F(2, 133) = 0.32$ ,  $p = .73$ , partial  $\eta^2 = .005$ , and athlete gender by presenting problem interaction, Wilks'  $\lambda = .99$ ,  $F(2, 133) = 0.35$ ,  $p = .71$ , partial  $\eta^2 = .005$ , all were nonsignificant. The main effects for athletic trainer gender, Wilks'  $\lambda = .97$ ,  $F(2, 133) = 1.76$ ,  $p = .18$ , partial  $\eta^2 = .03$ , athlete gender, Wilks'  $\lambda = .99$ ,  $F(2, 133) = 0.19$ ,  $p = .82$ , partial  $\eta^2 = .003$ , and presenting problem, Wilks'  $\lambda = .99$ ,  $F(2, 133) = 0.34$ ,  $p = .71$ , partial  $\eta^2 = .005$ , were nonsignificant as well (see Tables 25 through 27). Given that the power level was low for each of the above analyses due to the small sample size ( $\beta = .02$  to  $.06$ ), meaningful differences between the means were assessed by calculating Cohen's  $d$  effect sizes. There were no meaningful differences, however,

Table 25

*MANOVA Results for 10-Item Use of Psychosocial Interventions Questionnaire: Main Effect for Athletic Trainer Gender*

Effect	Male ( <i>n</i> = 64)		Female ( <i>n</i> = 78)		$\lambda$	<i>F</i>	partial $\eta^2$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Main effect for athletic trainer gender					.97	1.76	.03
Univariate effects							
Cognitive-Behavioral Techniques factor	3.08	0.90	3.12	0.84		0.01	.000
Supportive Interventions factor	4.44	0.66	4.64	0.50		3.35	.02

*Note.* Scores range from 1, *not at all likely*, to 5, *extremely likely*.

Table 26

*MANOVA Results for 10-Item Use of Psychosocial Interventions Questionnaire: Main Effect for Athlete Gender*

Effect	Male ( <i>n</i> = 85)		Female ( <i>n</i> = 57)		$\lambda$	<i>F</i>	partial $\eta^2$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Main effect for athlete gender					.99	0.19	.003
Univariate effects							
Cognitive-Behavioral Techniques factor	3.07	0.96	3.14	0.71		0.37	.003
Supportive Interventions factor	4.56	0.56	4.54	0.61		0.001	.000

*Note.* Scores range from 1, *not at all likely*, to 5, *extremely likely*.

Table 27

*MANOVA Results for 10-Item Use of Psychosocial Interventions Questionnaire: Main Effect for Presenting Problem*

Effect	Injury Problem ( <i>n</i> = 75)		Relationship Problem ( <i>n</i> = 67)		$\lambda$	<i>F</i>	partial $\eta^2$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Main effect for presenting problem					.99	0.34	.005
Univariate effects							
Cognitive-Behavioral Techniques factor	3.11	0.84	3.08	0.90		0.03	.000
Supportive Interventions factor	4.52	0.62	4.58	0.54		0.69	.005

*Note.* Scores range from 1, *not at all likely*, to 5, *extremely likely*.

between the means for athletic trainer gender ( $d = 0.02$ ), athlete gender ( $d = 0.08$ ), or presenting problem ( $d = 0.03$ ) for the Cognitive-Behavioral Techniques factor or between the means for athlete gender ( $d = 0.03$ ) for the Supportive Interventions factor. There were only small effects between the means for athletic trainer gender ( $d = 0.34$ ) and presenting problem ( $d = 0.10$ ) for the Supportive Interventions factor, with female athletic trainers ( $M = 4.64$ ,  $SD = 0.50$ ) reporting greater use of Supportive Interventions than male athletic trainers ( $M = 4.44$ ,  $SD = 0.66$ ) and athletic trainers reporting greater use of Supportive Interventions with the athlete with a relationship problem ( $M = 4.58$ ,  $SD = 0.54$ ) than the athlete with an injury ( $M = 4.52$ ,  $SD = 0.62$ ).

In response to the open-ended question asking the athletic trainers to discuss the treatment focus and specific treatment techniques they would use with the athlete, most athletic trainers stated that they would encourage the athlete's continued involvement with his/her team and continued support from his/her teammates and coaches (15.4%). They indicated that they would provide emotional support and encouragement to the athlete (14.8%) and would likely develop and monitor treatment goals (11.0%). Finally, some athletic trainers indicated that they would use cognitive techniques (e.g., reframing, encouraging positive thinking) to improve the athlete's mood (9.9%). See Table 28 for a complete list of techniques the athletic trainers stated they would use with the athlete categorized by presenting problem.

Exploratory analyses examining the relationships between the athletic trainers' feelings of competency in using psychosocial interventions (i.e., in using Physical Rehabilitation Techniques, Cognitive-Behavioral Techniques, and Supportive



Table 28

*Numbers, Percentages, and Rank Orders of Open-ended Responses for Use of Psychosocial Interventions*

Category	Type of Presenting Problem					
	Injury Problem			Relationship Problem		
	<i>n</i>	%	Rank	<i>n</i>	%	Rank
Develop/monitor goals.	17	20.2	1	3	3.1	8
Encourage continued involvement with team/support from teammates and/or coaches.	14	16.7	2	14	14.4	2
Provide informational support (e.g., information about injury and rehabilitation).	10	11.9	3	1	1.0	14
Change rehabilitation routine (e.g., time of day, exercises).	10	11.9	3	0	0.0	20
Provide emotional support and encouragement through active listening.	6	7.1	5	21	21.6	1
Use cognitive techniques to improve mood (e.g., encourage positive thinking, reframe negative thoughts).	5	6.0	6	13	13.4	3
Encourage the development of positive relationships/involvement in social activities.	5	6.0	6	8	8.2	4
Use a variety of techniques to treat physical aspects of injury.	4	4.8	8	0	0.0	20
Encourage the referral/continued treatment with a mental health professional.	3	3.6	9	7	7.2	6
Use peer modeling/examples of successful recovery from injury to provide encouragement to athlete.	3	3.6	9	1	1.0	14

*Note.* Participants could recommend more than one type of psychosocial intervention in their responses. Total number of interventions provided for each type of presenting problem:

Injury Problem, *n* = 84; Relationship Problem, *n* = 98.

*(table continues)*

Table 28 (continued).

Category	Type of Presenting Problem					
	Injury Problem			Relationship Problem		
	<i>n</i>	%	Rank	<i>n</i>	%	Rank
Involve parents/encourage athlete to seek support from family.	2	2.4	11	3	3.1	8
Take a supportive role to treatment provided by a mental health professional.	2	2.4	11	3	3.1	8
Teach/use muscular relaxation techniques.	1	1.2	13	8	8.2	4
Encourage athlete to identify and use effective coping methods to self-soothe.	1	1.2	13	3	3.1	8
Provide limited psychosocial intervention due to competency limits.	1	1.2	13	0	0.0	20
Use visualization with athlete.	0	0.0	16	2	2.1	12
Assess physical health/injury status.	0	0.0	16	1	1.0	14
Provide emotional support and empathy through personal disclosures.	0	0.0	16	1	1.0	14
Normalize the athlete's concerns.	0	0.0	16	3	3.1	8
Continue to assess and monitor athlete's symptoms/emotional state.	0	0.0	16	4	4.1	7
Assist athlete in managing interpersonal conflict (e.g., with coaches/teammates).	0	0.0	16	1	1.0	14
Encourage class attendance.	0	0.0	16	1	1.0	14

*Note.* Participants could recommend more than one type of psychosocial intervention in their responses. Total number of interventions provided for each type of presenting problem: Injury Problem, *n* = 84; Relationship Problem, *n* = 98.

Interventions) and their use of these interventions (i.e., their use of Cognitive-Behavioral Techniques and Supportive Interventions) revealed several positive relationships. The more competent the athletic trainers felt in providing Physical Rehabilitation Techniques, Cognitive-Behavioral Techniques, and Supportive Interventions, the more likely they were to use Cognitive-Behavioral Techniques and/or Supportive Interventions with the athlete. Specifically, for both the male and female athletic trainers, significant relationships were obtained between competency in providing Physical Rehabilitation Techniques and use of Supportive Interventions (male athletic trainers,  $r = .41, p < .001$ ; female athletic trainers,  $r = .38, p < .001$ ), between competency in providing Cognitive-Behavioral Techniques and use of Cognitive-Behavioral Techniques (male athletic trainers,  $r = .67, p < .001$ ; female athletic trainers,  $r = .62, p < .001$ ), and between competency in providing Supportive Interventions and use of Cognitive-Behavioral Techniques (male athletic trainers,  $r = .45, p < .001$ ; female athletic trainers,  $r = .35, p < .01$ ) and Supportive Interventions (male athletic trainers,  $r = .57, p < .001$ ; female athletic trainers,  $r = .57, p < .001$ ). The relationship between competency in providing Cognitive-Behavioral Techniques and use of Supportive Interventions was significant only for the female athletic trainers (male athletic trainers,  $r = .23, p = .05$ ; female athletic trainers,  $r = .40, p < .001$ ); female athletic trainers were more likely to use Supportive Interventions if they felt competent in using Cognitive-Behavioral Techniques. The relationship between competency in providing Physical Rehabilitation Techniques and use of Cognitive-Behavioral Techniques, however, was nonsignificant for both the male and female

athletic trainers (male athletic trainers,  $r = .26, p = .03$ ; female athletic trainers,  $r = .15, p = .15$ ), indicating that athletic trainers' perceptions of their general competence in using techniques to facilitate athletes' rehabilitation from injuries were unrelated to their use of cognitive-behavioral techniques with the hypothetical athlete experiencing an injury or relationship problem.

Athletic trainers who felt competent in providing one form of intervention were significantly more likely to feel competent in using the other interventions. That is, positive relationships were discovered between competency in providing Physical Rehabilitation Techniques and competency in providing Cognitive-Behavioral Techniques (male athletic trainers,  $r = .38, p < .001$ ; female athletic trainers,  $r = .30, p < .001$ ) and Supportive Interventions (male athletic trainers,  $r = .54, p < .001$ ; female athletic trainers,  $r = .59, p < .001$ ), as well as between competency in providing Cognitive-Behavioral Techniques and competency in providing Supportive Interventions (male athletic trainers,  $r = .56, p < .001$ ; female athletic trainers,  $r = .51, p < .001$ ). Similarly, if the athletic trainers used one form of psychosocial intervention with the athlete, they were significantly more likely to use the other psychosocial intervention, as indicated by the positive relationship between use of Cognitive-Behavioral Techniques and use of Supportive Interventions (male athletic trainers,  $r = .38, p < .01$ ; female athletic trainers,  $r = .26, p < .01$ ).

Of the 172 participants who completed the psychosocial interventions questionnaire, 76 participants (31 male, 45 female) responded to the injured athlete vignette. These participants completed two items specific to athletic injury rehabilitation

("facilitate Mike/Michelle's understanding of injury and rehabilitation" and "create variety in rehabilitation exercises"), in addition to the 10 items completed by all participants. To examine potential differences in the use of physical rehabilitation techniques with injured athletes based upon the gender of the athletic trainer and the gender of the athlete, a 2 (athletic trainer gender) by 2 (athlete gender) MANOVA with the factors generated from the 12-item inventory (i.e., Cognitive-Behavioral Techniques and Facilitating Support and Rehabilitation) as the dependent variables was conducted with the group responding to the injured athlete vignette only. Similar to the results with the injury and romantic relationship groups for the 10-item inventory, MANOVA results were nonsignificant. The athletic trainer gender by athlete gender interaction was nonsignificant, Wilks'  $\lambda = .98$ ,  $F(2, 71) = 0.70$ ,  $p = .50$ , partial  $\eta^2 = .02$ , as well as the main effects for athletic trainer gender, Wilks'  $\lambda = .95$ ,  $F(2, 71) = 2.06$ ,  $p = .13$ , partial  $\eta^2 = .06$ , and athlete gender, Wilks'  $\lambda = .99$ ,  $F(2, 71) = 0.23$ ,  $p = .80$ , partial  $\eta^2 = .006$  (see Tables 29 and 30). Power also was low for these analyses ( $\beta = .02$  to  $.20$ ), and therefore, Cohen's  $d$  effect sizes were calculated. Small to moderate effect sizes were obtained between the male (Cognitive-Behavioral Techniques,  $M = 2.97$ ,  $SD = 0.94$ ; Facilitating Support and Rehabilitation,  $M = 4.44$ ,  $SD = 0.73$ ) and female (Cognitive-Behavioral Techniques,  $M = 3.16$ ,  $SD = 0.86$ ; Facilitating Support and Rehabilitation,  $M = 4.72$ ,  $SD = 0.35$ ) athletic trainers for both Cognitive-Behavioral Techniques ( $d = 0.21$ ) and Facilitating Support and Rehabilitation ( $d = 0.52$ ), with the female athletic trainers reporting greater use of each of these techniques with the injured athlete than the male athletic trainers. A small effect ( $d = 0.16$ ) also was found

Table 29

*MANOVA Results for 12-Item Use of Psychosocial Interventions Questionnaire: Main Effect for Athletic Trainer Gender*

Effect	Male ( <i>n</i> = 31)		Female ( <i>n</i> = 45)		$\lambda$	<i>F</i>	partial $\eta^2$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Main effect for athletic trainer gender					.95	2.06	.06
Univariate effects							
Facilitating Support and Rehabilitation factor	4.44	0.73	4.72	0.35		4.17	.06
Cognitive-Behavioral Techniques factor	2.97	0.94	3.16	0.86		0.47	.007

*Note.* Scores range from 1, *not at all likely*, to 5, *extremely likely*.

Table 30

*MANOVA Results for 12-Item Use of Psychosocial Interventions Questionnaire: Main Effect for Athlete Gender*

Effect	Male ( <i>n</i> = 46)		Female ( <i>n</i> = 30)		$\lambda$	<i>F</i>	partial $\eta^2$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Main effect for athlete gender					.99	0.23	.006
Univariate effects							
Facilitating Support and Rehabilitation factor	4.64	0.53	4.55	0.59		0.15	.002
Cognitive-Behavioral Techniques factor	3.07	0.95	3.10	0.82		0.18	.002

*Note.* Scores range from 1, *not at all likely*, to 5, *extremely likely*.

for athlete gender and Facilitating Support and Rehabilitation, with athletic trainers reporting greater use of this intervention with the male athlete ( $M = 4.64$ ,  $SD = 0.53$ ) than the female athlete ( $M = 4.55$ ,  $SD = 0.59$ ). No meaningful differences ( $d = 0.03$ ) were found, however, in the use of Cognitive-Behavioral Techniques with the male ( $M = 3.07$ ,  $SD = 0.95$ ) and female ( $M = 3.10$ ,  $SD = 0.82$ ) athletes.



## CHAPTER 4

### DISCUSSION

The primary purpose of this study was to assess certified athletic trainers' abilities to recognize, diagnose, and intervene with a hypothetical athlete experiencing depression. Unfortunately, little research has been conducted on these issues, despite the NATA's requirement that athletic trainers be competent in the recognition of psychological disorders to be certified. Researchers have suggested, though, that athletic trainers are in an ideal position to treat athletes' physical and psychological concerns for several reasons, including: (a) athletic trainers' opportunities to recognize athletes' distress given their personal relationships and frequent interactions with them (e.g., Gordon et al., 1998; Henderson & Carroll, 1993; Kolt, 2001; Pedersen, 1986; Ray et al., 1999; Singer & Johnson, 1987; Tuffey, 1991; Udry, 1996; Weiss & Troxel, 1986; Wiese & Weiss, 1987; Wiese et al., 1991; Wiese-Bjornstal & Smith, 1993); (b) athletes' greater willingness to seek help from athletic trainers than from mental health professionals (Maniar et al., 1999; Maniar et al., 2001); and (c) athletic trainers' limited access to mental health professionals to which they could refer their athletes for assistance with personal issues or psychological aspects of injury (Chung & Gould, 2001; Larson et al., 1996; Moulton et al., 1997).

When working with athletes' psychological issues, it has been suggested that athletic trainers assess for psychological problems, provide basic counseling and cognitive behavioral interventions, refer to mental health professionals, and/or work in conjunction with mental health practitioners as part of a sportsmedicine team (DePalma

& DePalma, 1989; Ford & Gordon, 1993; Gordon et al., 1998; Hardy & Crace, 1999; Henderson & Carroll, 1993; Kolt, 2001; Pedersen, 1986; Ray et al., 1999; Shaffer & Wiese-Bjornstal, 1999; Singer & Johnson, 1987; Tuffey, 1991; Udry, 1996; Weiss & Troxel, 1986; Wiese & Weiss, 1987; Wiese et al., 1991; Wiese-Bjornstal & Smith, 1993; Wiese-Bjornstal & Smith, 1999). Initial research, however, indicated that athletic trainers encounter athletes experiencing psychological distress with some frequency (Ford & Gordon, 1997; Ford & Gordon, 1998; Larson et al., 1996), but that they have difficulty recognizing this distress (Brewer, Petitpas, et al., 1995; Maniar et al., 1999). Furthermore, researchers argued that athletic trainers are not intervening appropriately because significant numbers of athletes are not being referred for counseling when needed (Cramer Roh & Perna, 2000; Larson et al., 1996).

#### Athletic Trainers' Abilities to Identify the Symptoms and Diagnosis of Depression

In contrast to previous research suggesting that athletic trainers have difficulty identifying psychological distress (Brewer, Petitpas, et al., 1995; Maniar et al., 1999), the athletic trainers in this study were fairly accurate in identifying the symptoms and diagnosis of depression in the hypothetical athlete. They rated the athlete significantly higher in Depressive Symptoms than in Anger/Agitation Symptoms or Compulsive Behavioral Symptoms, and significantly higher in Anger/Agitation Symptoms than in Compulsive Behavioral Symptoms. On average, Depressive Symptoms and Anger/Agitation Symptoms were rated as more than *moderately* present, and Compulsive Behavioral Symptoms as not even *a little* present. Additionally, the athletic trainers' assessment of the athlete's symptoms translated into significantly higher

ratings of a depression diagnosis compared to disorders of adjustment, anxiety, sleep, or substance abuse. Thus, athletic trainers accurately diagnosed the athlete with a depressive disorder of moderate severity when presented with a complete picture of the athlete's symptoms.

These findings contrast with previous research conducted by Brewer, Petitpas, et al. (1995) and Maniar et al. (1999), who concluded that athletic trainers/physical therapists have difficulty identifying clinically meaningful emotional disturbance in their injured patients. Brewer, Petitpas, et al. obtained nonsignificant correlations between patients' self-reports of psychological distress and practitioners' observations of the patients' behaviors, but significant correlations between the patients' and practitioners' ratings of the patients' rehabilitation progress. These results were obtained through a paper-and-pencil symptom checklist completed by the patients, and practitioners' ratings of a list of behaviors observed in the patients that signify poor psychological response to athletic injury. In other research, Maniar et al. obtained a nonsignificant correlation between injured athletes' self-reports of depression and general mood state and the athletic trainers' responses on a 7-pt. Likert scale to a 1-item inventory asking, "How difficult has it been for this athlete to cope with their injury?"

A possible reason for the difference in results between this study and those of Brewer, Petitpas, et al. (1995) and Maniar et al., (1999) is in the methodology each used to assess athletic trainers' abilities to identify distress in athletes. Both Brewer, Petitpas, et al. and Maniar et al. compared athlete self-reports of psychological symptoms with athletic trainers' observations of behavioral indicators of distress, and

Maniar et al. used only a one-item question to assess this distress. Their assessment tools might not have been sensitive enough to conclude that athletic trainers have difficulty recognizing distress given that they were comparing athlete self-reports of their mood states and depressive symptoms with athletic trainers' observations of their injury-related behaviors only. Athletes' injury-related behaviors are not a perfect reflection of their inner psychological state. Furthermore, the question Maniar et al. asked athletic trainers to assess their recognition of depression in the athlete (i.e., "How difficult has it been for this athlete to cope with their injury?") is not equivalent to asking them whether they believed that the athlete was depressed and to what extent depressive symptoms were present. Thus, the athletic trainers' responses and the athletes' self-reports of depression were not directly comparable.

This study, in contrast, utilized an analogue research design that provided athletic trainers a significant amount of information about the athlete in a vignette from which they rated the presence of a variety of cognitive, affective, and behavioral symptoms. Thus, athletic trainers were asked to provide more comprehensive ratings of distress (i.e., on cognitive, affective, and behavioral levels versus simply on a behavioral level) compared to the aforementioned studies, which might allow for more accurate conclusions regarding athletic trainers' abilities in this area.

At the same time, conclusions drawn from the present study regarding athletic trainers' abilities to recognize distress could be limited in another way. One explanation Maniar et al. (1999) provided for the low correlation between the athletes' self reports of distress and the athletic trainers' observations of distress, was that the athletic

trainers might not have asked about the athletes' emotional disturbance due to lack of training in the assessment of depression and/or a lack of adequate diagnostic tools to assess emotional disturbance. This explanation is plausible, particularly given data from this study and others (e.g., Larson et al., 1996; Moulton et al., 1997) suggesting that athletic trainers receive little academic and applied training in psychology and counseling. In the current study, approximately half of the participants completed a sport psychology, psychology of injury/rehabilitation in sport, and/or abnormal psychology/psychopathology course at the undergraduate level, with substantially fewer participants receiving education in counseling skills, or education in any of the aforementioned areas on a more ongoing basis (i.e., continuing education) or at more advanced levels (i.e., graduate level). Furthermore, a very small percentage of the participants received formal supervision in sport psychology/counseling with individual athletes or sport teams (<5% for each).

It is possible, then, that if the athletic trainers in this study had to personally assess the hypothetical athlete via clinical interviewing and/or diagnostic testing, or if they received less information (e.g., psychological symptoms) about the athlete in the vignette, they might have had greater difficulty identifying depressive symptoms and/or a depression diagnosis. This study did not assess athletic trainers' abilities in clinical assessment. The athletic trainers' abilities to accurately identify depression in the athlete might have been related to the methodology used in this study. The athletic trainers were provided fairly detailed information about the athlete's cognitive, affective, and behavioral functioning from the vignette, information that they may or may not

have gained had they been left to uncover it themselves. Given this fact, the methodology used in this study might not simulate real-world experiences where athletic trainers must rely upon the skills/tools mentioned above. This highlights a primary limitation in the use of analogue research designs; they allow for strong internal validity, but limited external validity (Cook & Rumrill, 2005). Nonetheless, these data indicate that when athletic trainers are provided sufficient information about an athlete's psychological state, they are able to accurately identify his/her symptoms and integrate them to formulate a psychological diagnosis.

*The Effects of the Independent Variables on Athletic Trainers' Assessments of Depression Symptoms and Diagnosis*

Although the athletic trainers were given the same detailed information about the athlete's psychological state, they provided significantly different ratings of the athlete's symptoms depending upon their gender and the athlete's presenting problem. Athlete gender did not significantly impact their ratings, however, and none of these independent variables significantly influenced their diagnosis.

*Athletic trainer gender.* Interesting differences emerged between the male and female athletic trainers in terms of their perceptions of the athlete's psychological symptoms. Although they both rated the athlete's depressive symptoms as more than *moderately present*, the female athletic trainers rated the athlete significantly higher on the Depressive Symptoms factor than the male athletic trainers, indicating that they perceived the athlete's depressive symptoms as more intense. A sociocultural perspective might explain this finding. Men and women likely experience and express

emotion differently as a result of the differing social roles they fill in our society.

According to Grossman and Wood (1993), women's traditional fulfillment of caretaker roles involves sensitivity to the needs of others and their emotional expression, whereas men's roles are less likely to emphasize emotional responsiveness. Masculine gender role socialization, instead, emphasizes stoicism and suppression of emotion (Cochran & Rabinowitz, 2003). Grossman and Wood explained that when men and women are socialized in this way, they likely acquire skills and beliefs through their experiences that cause women to be more responsive to their own and others' emotions than men. Indeed, women have reported more intense experience of emotions than men (including depression and sadness), more intense expression of emotion, and greater comfort with and tendency to seek out emotional experiences (for a review, see Grossman & Wood, 1993). Women's greater comfort with emotion seems beneficial for assessing psychological symptoms in others. It has been suggested that female interviewers create conditions more conducive to the disclosure of psychiatric symptoms and are perceived as more sympathetic than male interviewers (Pollner, 1998). As a result, male and female respondents interviewed by women report greater symptoms of depression, substance abuse, and conduct disorders than respondents interviewed by men (Pollner, 1998).

In the current study, female athletic trainers appeared more comfortable with emotion as well, because they reported feeling significantly more competent in providing Supportive Interventions (e.g., emotional support) than the male athletic trainers. Additionally, a nonsignificant, but small effect was obtained between male and

female athletic trainers' use of Supportive Interventions with the hypothetical athlete (the athlete with an injury or relationship problem), with female athletic trainers more likely to use Supportive Interventions than male athletic trainers. With the injured athlete only, this effect was even greater; a moderate effect was obtained for Facilitating Support and Rehabilitation with female athletic trainers more likely to use this intervention than male athletic trainers. Conceptualizing from a gender role explanation, these data might indicate that the female athletic trainers in this study were more responsive to the athlete's intense emotions than the male athletic trainers and/or they had a greater awareness of the types of responses that would be most helpful to a depressed athlete. They also might have had more experience working with athletes who disclose depressive symptoms and therefore, felt more comfortable and skilled in dealing with the hypothetical athlete.

*Athlete presenting problem.* The athletic trainers also rated the athlete's symptoms differently depending upon the athlete's presenting problem. These differences were found only for the Anger/Agitation Symptoms factor, however, and not for the Depressive Symptoms factor or Compulsive Behavioral Symptoms factor. Specifically, the athlete experiencing an injury was rated significantly higher in Anger/Agitation than the athlete experiencing a performance problem. Although there were no significant differences in Anger/Agitation ratings between the injury and romantic relationship problems or between the romantic relationship and performance problems, a small effect was obtained for the former ( $d = 0.23$ ) with the injured athlete rated higher in Anger/Agitation than the athlete with a relationship problem. Athletic



trainers have reported that anger is one of the most frequently encountered responses to injury (Larson et al., 1996). Perhaps their perception that the injured athlete was angrier and more agitated than the athletes with performance or relationship problems was due to the fact that they work with injured athletes who experience anger on a regular basis and expect to see this reaction as part of the injury recovery process. Furthermore, athletic trainers might perceive athletes to have less control over injuries than performance problems, which could cause them to rate the injured athlete higher in anger than the athlete with a performance issue. Finally, the Anger/Agitation factor had a physical component to it (i.e., tension) that athletic trainers might expect to see following an injury, in comparison to relationship, and possibly performance, issues where this component might be absent.

#### Athletic Trainers' Referral Recommendations and Past Referral Practices

##### *Referral Recommendations for the Hypothetical Athlete*

Results indicated that the athletic trainers would appropriately refer the athlete to a mental health professional; athletic trainers were most likely to refer the athlete to a counselor/psychologist and secondly, to a sport psychology consultant, compared to all other referral options (i.e., psychiatrist, physician, coach, physical therapist, treating the athlete themselves, or doing nothing). Although they were more likely to refer the athlete to a psychiatrist compared to a physical therapist, treating the athlete themselves, or doing nothing, there were no significant differences in their referrals to a psychiatrist compared to a physician or coach. In addition to the ratings they provided, the athletic trainers' open-ended responses clearly indicated their intention to refer to a

mental health professional and/or work with a mental health professional as part of a sportsmedicine team. Additionally, many athletic trainers explicitly identified the importance of further assessment and/or treatment of the athlete's depression/suicidal ideation. Thus, results indicated that the athletic trainers accurately identified the need for mental health treatment, because they reported that they would likely refer the athlete to a mental health professional if they were working with them. The decision to refer the athlete to a counselor/psychologist and sport psychology consultant is a positive sign and contrasts with previous suggestions that distressed athletes are not being appropriately referred for counseling (Cramer Roh & Perna, 2000).

When looking at options to refer the hypothetical athlete to an allied health professional (i.e., physician, physical therapist), coach, treat the athlete themselves, or do nothing, results indicated that the athletic trainers were mostly and equally likely to refer to a physician or coach compared to a physical therapist, treating the athlete themselves, or doing nothing. They were significantly more likely to treat the athlete themselves compared to referrals to a physical therapist or doing nothing, and were least likely to refer to a physical therapist or do nothing compared to all other referral options. Mean scores for each of these options were low (i.e., *not at all likely* to *somewhat likely*), however, indicating that the athletic trainers were considerably less inclined to refer to an allied health professional or coach, treat the athlete themselves, or do nothing compared to referring to a mental health professional.

### *Athletic Trainers' Past Referral Practices*

In support of the results with the hypothetical athlete, data gathered regarding athletic trainers' referral practices indicated that most athletic trainers who had access to counselors/psychologists previously referred to them; 70.5% of the total sample of athletic trainers reported having access to a counselor/psychologist, and of this group, 68.3% had previously referred to one (59.2% of the total sample). Athletic trainers were less inclined, however, to refer to psychiatrists and sport psychology consultants even when they had access to them; of the 30.9% of athletic trainers who had access to psychiatrists, 28.3% had previously referred (10.9% of the total sample), and of the 24.7% of athletic trainers who had access to sport psychology consultants, 53.2% had previously referred (17.7% of the total sample). Most of the athletic trainers who reported that they had never referred to a counselor/psychologist or psychiatrist indicated that they had not done so because they had never encountered a situation where the referral was necessary (70.2% and 47.3%, respectively), and many athletic trainers indicated that they had never referred to psychiatrists or sport psychology consultants because they did not have access to them (24.3% and 57.1%, respectively). Given the unlikelihood of such a high proportion of athletic trainers never encountering an athlete needing a mental health referral, it seems that athletic trainers still have difficulty identifying when it is appropriate to refer an athlete for mental health treatment. Athletic trainers' limited access and referrals to psychiatrists and sport psychology consultants, on the other hand, is plausible. Given that most of the athletic trainers in this study worked in either a 4-yr college/university or public high school

setting, it is likely that their protocol did not involve direct referral to a psychiatrist, but instead, referral to an on-campus counselor who then referred to a psychiatrist if necessary. This type of protocol might explain their limited access and low number of referrals to psychiatrists. Regarding access and referral to sport psychology consultants, however, these low percentages might be better attributed to their lack of knowledge of the field of sport psychology and/or sport psychology consultants in their area. Although most athletic trainers (57.1%) reported never having referred to a sport psychology consultant because they did not have access to, or were unaware of any consultants in their areas, athletic trainers appeared open to the idea of referring to them given that next to counselor/psychologists, referring the hypothetical athlete to a sport psychology consultant was viewed as the next most viable option. This highlights the importance of individual sport psychology consultants and nationally recognized sport psychology associations, such as the Association for the Advancement of Applied Sport Psychology (AAASP), educating the public and marketing their services to the NATA, perhaps by co-sponsoring workshops and presentations on psychological issues among athletes that are relevant to the field of athletic training. Topics might focus on issues such as recognizing signs and symptoms of psychological distress in athletes, understanding psychological antecedents and consequences of athletic injury, and using basic counseling skills/psychosocial techniques to facilitate injury rehabilitation.

These results provide additional data to clarify the referral rate discrepancy obtained by Larson et al. (1996) and Moulton et al. (1997). When asking athletic trainers to report their referral practices to counselor/psychologists, psychiatrists, and

sport psychology consultants separately, as was done in this study, the data indicate that referrals to counselors/psychologists were comparable to the higher referral rate obtained by Moulton et al. (71%) and referrals to psychiatrists and sport psychology consultants were comparable to the lower referral rate obtained by Larson et al. (23.9%). The different referral rates obtained in these studies might be related primarily to the manner in which the question regarding referral was asked. Larson et al. asked athletic trainers to indicate if they had "referred an injured athlete for counseling for situations related to their injury," whereas Moulton et al. (1997) asked if athletic trainers had referred athletes to "on-campus student support services." Thus, Larson et al. asked about athletic trainers' referral practices specifically in response to an athlete's injury and Moulton et al. restricted to their referral question specifically to on-campus services. The referral questions in this study, in contrast, allowed athletic trainers to separately report their referral practices to a variety of mental health professionals and to describe why they had or had not previously referred to each. Asking the referral question more broadly, as was done in this study, might have allowed for a more accurate referral rate to be obtained.

#### *The Effects of the Independent Variables on Athletic Trainers' Decisions Regarding Referral*

The athlete's gender and presenting problem significantly impacted athletic trainers' decisions regarding referral, however, there were no significant effects for athletic trainer gender. For referral to a sport psychology consultant only, the athlete gender by presenting problem interaction was significant, and for a multitude of referral

possibilities (i.e., counselor/psychologist, psychiatrist, sport psychology consultant, physician, physical therapist, and treating the athlete him/herself), the main effect for presenting problem was significant. Results indicate that, overall, presenting problem was the primary factor in determining referral recommendations for the hypothetical athlete.

*Athlete gender and presenting problem.* Results did not support the hypothesis that male athletic trainers would be less likely than female athletic trainers to refer the male athlete to a sport psychology consultant, counselor/psychologist, or psychiatrist. Instead, the significant athlete gender by presenting problem interaction for referral to a sport psychology consultant indicated that both male and female athletic trainers were significantly less likely to refer the male athlete with a relationship problem to a sport psychology consultant compared to the male and female athletes experiencing injury or performance problems. For the female athlete experiencing a relationship problem, significant differences in referrals to a sport psychology consultant were obtained only in comparison to the male athlete with a performance problem, with athletic trainers indicating that they would be significantly less likely to refer the female athlete to a sport psychology consultant than the male athlete. The athletic trainers' decisions regarding referral of the male and female athletes were appropriate, because it does not seem fitting to refer athletes experiencing relationship problems to a mental health professional dealing primarily with psychological issues within sport and exercise contexts (i.e., a sport psychology consultant); however, this effect was stronger for the male athlete compared to the female athlete. Athletic trainers were willing to refer the

female athlete to a sport psychology consultant for a broader range of issues than the male athlete. Possibly, this finding reflects research evidence indicating that male athletes have more of a stigma toward seeking sport psychology consultation than female athletes (Martin, 2005; Martin et al., 1997), and are more likely to derogate a male athlete who consulted a psychology professional than females (Linder et al., 1991). Although results did not indicate that the male athletic trainers in this study were less willing to refer the male athlete to a psychology professional than the female athletic trainers, it is possible that both the male and female athletic trainers shared in the view that referring the male athlete with a relationship problem to a sport psychology consultant would be more stigmatizing to the athlete than referring a female athlete with the same problem.

*Effect of presenting problem.* The athlete's presenting problem influenced the athletic trainers' decisions to refer to a variety of professionals, including physical therapists, sport psychology consultants, physicians, treating the athlete themselves, counselor/psychologists, and psychiatrists. Presenting problem did not significantly influence the athletic trainers' decisions only with respect to referring to the coach or doing nothing. As one would expect, the athletic trainers were significantly more likely to refer the injured athlete to a physical therapist compared to the athletes with relationship or performance problems, and were more likely to refer both the injured athlete and athlete with a performance issue to a physician compared to the athlete with relationship concerns. They also were more likely to refer both the injured athlete and athlete with a performance issue to a sport psychology consultant compared to the

athlete with a relationship problem. As hypothesized, athletic trainers were significantly more likely to refer the athlete with relationship concerns to a mental health professional (i.e., counselor/psychologist or psychiatrist), compared to athletes with injury or performance concerns. Specifically, the athletic trainers were more likely to refer the athlete with a relationship problem to a counselor/psychologist compared to the injured athlete and were more likely to refer both the athletes with relationship and performance concerns to a psychiatrist compared to the injured athlete (at the  $p < .05$  level only). Thus, the athletic trainers were least likely to refer the injured athlete for mental health treatment compared to the athletes with other problems. Consistent with hypotheses, they were significantly more likely to treat the injured athlete themselves than the athlete with a performance problem, and at  $p < .05$ , than the athlete with a relationship problem. Additionally, they were more likely to treat the athlete with a relationship problem themselves compared to the athlete with a performance issue, but again, at  $p < .05$  only. Results did not support the hypothesis that male athletic trainers would be more likely to treat the athlete themselves than the female athletic trainers.

The athletic trainers' increased tendency to treat the injured athlete themselves and greater reluctance to refer the injured athlete to a mental health professional compared to the athletes with performance or relationship concerns indicate that, in practice, they could be more likely to work with injured athletes beyond their level of competence and/or allow an injured athlete who could benefit from mental health treatment go untreated. Although athletic trainers in this study reported high levels of perceived competence in using Physical Rehabilitation Techniques and Supportive



Interventions with athletes, they reported less than moderate competence in using Cognitive-Behavioral Techniques. Furthermore, when athletic trainers felt less competent in providing a specific form of intervention, they were less likely to use that intervention with the hypothetical athlete; and the athletic trainers in this study felt significantly less competent and were less likely to use Cognitive-Behavioral Techniques with the hypothetical athlete than Supportive Interventions. Thus, in practice, the athletic trainers might not refer injured athletes to professionals trained in the use of Cognitive-Behavioral Techniques when they could benefit from them. Possibly, athletic trainers have difficulty identifying when an athlete could benefit from these techniques and do not understand their use (Ninedek & Kolt, 2000). That being said, however, it should be noted that the mean score for treating the injured athlete was low, indicating that the athletic trainers were only *somewhat likely* to treat the injured athlete themselves.

An alternative explanation for the athletic trainers' greater tendency to treat the hypothetical injured athlete themselves, might be that they interpreted the statement, "I would treat Mike/Michelle myself" to mean that they would treat the injured athlete's physical injury in addition to, or instead of, the athlete's psychological reactions to the injury. The athletic trainers also might have believed that by treating the athlete's physical injury, they were treating the athlete's psychological state. Indeed, several participants indicated in their open-ended responses that they interpreted this question to mean that they would continue to work with the athlete in conjunction with a mental health professional versus meaning that they would work with the athlete solely by

themselves. If these explanations are true, then one would expect that they would be more likely to treat the injured athlete than the athletes experiencing problems unrelated to injuries (i.e., performance or relationship problems), particularly given research indicating that athletic trainers prefer counseling athletes who have injury-related problems over those with personal issues (Moulton et al., 1997).

#### Athletic Trainers' Use of Psychosocial Strategies/Techniques

##### *Athletic Trainers' Perceptions of Their Roles in Facilitating Psychological Well-Being*

Consistent with previous research (Francis et al., 2000; Larson et al., 1996; Ninedek & Kolt, 2000; Weiss & Troxel, 1986; Wiese et al., 1991), the athletic trainers believed that they play an important role in assisting athletes with psychological issues occurring during injury rehabilitation or otherwise. They strongly agreed that using psychosocial techniques in rehabilitation and facilitating psychological referrals were important aspects of their athletic training responsibilities, but held more neutral views about their role in counseling athletes on personal issues. Additionally, they rated using psychosocial techniques in rehabilitation significantly higher in terms of their roles and responsibilities than facilitating psychological referrals and providing personal counseling, and rated facilitating psychological referrals significantly higher than providing personal counseling. These results are similar to previous studies that have shown that athletic trainers view psychological treatment of sport injuries as important (Larson et al., 1996) and as part of their responsibilities as athletic trainers (Moulton et al., 1997; Weiss and Troxel, 1986), but feel less comfortable counseling athletes on personal issues than on issues more closely related to their injuries (Moulton et al.,

1997). It is understandable and appropriate that they ranked personal counseling lowest in terms of their roles, because providing personal counseling is not a primary responsibility of the athletic trainer. Athletic trainers should not be expected to provide psychotherapy, but should possess adequate basic counseling skills to assist them in developing good rapport with athletes, recognizing psychological distress, and making appropriate mental health referrals. It is interesting, however, that the athletic trainers more strongly believed that they should use psychosocial techniques with the athletes than provide psychological referrals. Possibly, their higher ratings for using psychosocial techniques with athletes than providing psychological referrals reflects their belief in treating the whole person and/or belief that they can treat most psychological problems experienced by athletes. Their response also could have reflected what they do in practice. They might use psychosocial techniques with athletes more than provide mental health referrals, perhaps due to limited access to mental health professionals and/or a lack of understanding of psychological problems that would be appropriate to refer. Finally, they may have been responding to the words "injury" and "rehabilitation" in the statement, "An athletic trainer facilitates psychological recovery from injury by using psychosocial techniques in rehabilitation." That is, they ranked roles pertaining to the facilitation of "physical recovery from injury" and the facilitation of "psychological recovery from injury," higher than roles related to managing athletes' personal issues (i.e., facilitating "appropriate referrals for athletes' personal issues" and counseling athletes on "personal issues"). This explanation is consistent with previous research

finding that athletic trainers prefer dealing with injury-related problems over personal issues (Moulton et al., 1997).

*Athletic Trainers' Use of Psychosocial Interventions with the Hypothetical Athlete*

Although athletic trainers viewed using psychosocial techniques in rehabilitation as an important role of an athletic trainer, only about one-fourth (26.9%) of the sample indicated that they would be more than *somewhat likely* to treat the hypothetical athlete themselves. Thus, athletic trainers were more likely to refer the athlete for treatment than to work with him or her themselves. Additionally, despite their greater discomfort with taking on a personal counseling role in their work with athletes, they were significantly more likely to use Supportive Interventions than Cognitive-Behavioral Techniques with the athletes experiencing injury and relationship problems. In support of the quantitative results, open-ended responses regarding the specific treatment techniques the athletic trainers would use with the athlete indicated that they would most likely facilitate social support from teammates and coaches and provide emotional support and encouragement. These findings are consistent with the techniques athletic trainers and physiotherapists have previously identified as most effective in helping athletes' cope with injury rehabilitation. Athletic trainers and physiotherapists have ranked the trainer's/therapist's interpersonal communication skills as most important, followed by techniques such as providing a realistic timeline to full recovery, receiving support from the coach, helping the athlete understand the rehabilitation strategy, keeping the athlete involved with the team, and receiving positive reinforcement from the trainer/therapist (Francis et al., 2000; Ninedek & Kolt, 2000; Wiese et al., 1991).

Athletes agree that support from athletic trainers/physiotherapists is important; they have described "good" physiotherapists as friendly, empathic, active listeners who appear interested in them (Ford & Gordon, 1993). Additionally, support from others, such as athletic trainers, has been shown to positively influence athletes' adherence to their rehabilitation programs (Byerly et al., 1994; Duda et al., 1989; Fisher et al., 1988).

The finding that the athletic trainers were significantly less likely to use Cognitive-Behavioral Techniques with the athlete than Supportive Interventions is similar to previous research where athletic trainers/physiotherapists rated cognitive-behavioral techniques such as mental imagery, muscular relaxation, emotional control strategies, and concentration skills as least important in treating injured athletes (Francis et al., 2000; Ninedek & Kolt, 2000; Wiese et al., 1991). In Gordon et al.'s (1991) research, only 32% of their sample of physiotherapists was aware of techniques associated with cognitive-behavioral models of stress and only 38% used behavioral modification techniques with athletes on a regular basis. When reflecting upon the reasons for limited use of cognitive-behavioral techniques despite physiotherapists' reported desire to understand their patients' stress/anxiety, Ninedek and Kolt (2000) speculated that the therapists did not fully understand the principles and application of these techniques and/or believed that use of the techniques was beyond their professional realm of expertise. In support of this explanation, athletic trainers in the current study felt significantly less competent in providing Cognitive-Behavioral Techniques than in providing Physical Rehabilitation Techniques or Supportive Interventions to athletes.

### *The Effects of the Independent Variables on Athletic Trainers' Use of Psychosocial Interventions*

Analyses examining the influence of the independent variables on athletic trainers' use of psychosocial interventions were nonsignificant, indicating that the psychosocial interventions athletic trainers chose to use with the athlete did not differ depending upon their gender, the athlete's gender, or the athlete's presenting problem. Athletic trainers were equally likely to use Supportive Interventions, Facilitating Support and Rehabilitation, and Cognitive-Behavioral Techniques with the male and female athlete experiencing injury, performance, and relationship problems.

The aforementioned analyses were based on a subsample of athletic trainers (i.e., those who indicated that they were *somewhat likely* to *moderately likely* to treat the athlete themselves), however, resulting in low power to detect statistically significant results. As a result, effect sizes were calculated to determine if the results were nonetheless clinically meaningful, and indicated that small to moderate effects occurred particularly with respect to athletic trainer gender and their use of a variety of psychosocial interventions. Additionally, effects were obtained for presenting problem and use of Supportive Interventions and for athlete gender and Facilitating Support and Rehabilitation (i.e., the factor related to supportive and injury rehabilitation interventions for the injured athlete group only); however, in both cases, the effects were fairly small ( $d = 0.10$  and  $0.16$ , respectively) and might not be indicative of clinically meaningful results.

On the other hand, larger effect sizes were obtained for athletic trainer gender and the use of Supportive Interventions ( $d = 0.34$ ), Facilitating Support and Rehabilitation ( $d = 0.52$ ), and Cognitive-Behavioral Techniques (with the injured athlete group only) ( $d = 0.21$ ); female athletic trainers were more likely to use the specified intervention than male athletic trainers in each case. Given the magnitude of these effects and their consistency (i.e., the female athletic trainers consistently were more likely to use the interventions than the male athletic trainers), it is likely that these results are clinically significant. These results suggest that the female athletic trainers were more likely to use a variety of psychosocial interventions with the athlete, possibly because they felt more comfortable or competent in using them. The explanation for their greater use of supportive, counseling-based interventions than the male athletic trainers could be similar to that provided for their perceptions of greater intensity of depressive symptoms in the athlete than male athletic trainers. That is, the socialization of women as caretakers and nurturers might have caused them to develop skills and beliefs that contribute to them being more responsive to their own and others' emotions than men. As a result, the female athletic trainers might feel more comfortable and confident in providing supportive, counseling-based interventions than the male athletic trainers. In support of this idea, results indicated that the female athletic trainers felt significantly more competent in providing Supportive Interventions than the male athletic trainers and exploratory correlations indicated that the more female athletic trainers felt competent in providing a form of intervention (both Supportive

Interventions and Cognitive-Behavioral Techniques) the more likely they were to use the intervention with the hypothetical athlete.

*Influence of Psychology Coursework Taken on Athletic Trainers' Perceptions of Competency in Providing Psychosocial Interventions*

Examination of the factors that could have impacted athletic trainers' feelings of competency in providing psychosocial interventions revealed that taking coursework in sport and general psychology had a significant impact, whereas the year in which the athletic trainers completed their academic degrees did not. Athletic trainers who completed coursework in psychology of injury/rehabilitation in sport, abnormal psychology/psychopathology, and counseling skills and techniques felt significantly more competent in providing Cognitive-Behavioral Techniques than athletic trainers who had not completed coursework in these areas, and athletic trainers completing abnormal psychology/psychopathology and counseling skills and techniques coursework also felt significantly more competent in providing Supportive Interventions. The effects of taking coursework on perceptions of competency were stronger for Cognitive-Behavioral Techniques than for Supportive Interventions, with moderate effects for the former and small effects for the latter. Interestingly, completing psychology coursework affected athletic trainers' perceived competency in providing Physical Rehabilitation Techniques as well, as athletic trainers who completed coursework in the aforementioned subject areas felt more competent in facilitating physical rehabilitation than those who did not. Taking a course in sport and exercise psychology did not significantly influence feelings of competency; however, this finding was most likely due



to the fact that the vast majority (85%) of athletic trainers completed a course in this area. In contrast, 70.6% of the sample completed a course in psychology of injury/rehabilitation in sport, 53.4% in abnormal psychology/psychopathology, and 40.4% in counseling skills and techniques.

These results are promising compared to previous research where only half of the sample of athletic trainers completed sport psychology coursework (Larson et al., 1996). Previous researchers, however, did not examine coursework taken by level (e.g., undergraduate, graduate, continuing education) and results from the current study suggest that there is room for improvement in terms of course offerings/curriculum requirements at the graduate level for all areas of study (5.9% to 35.9% of athletic trainers completed graduate coursework in the aforementioned subject areas) and for counseling skills and techniques at all levels (9.8% to 23.8% of athletic trainers completed counseling coursework at any level). Additionally, completion of continuing education in sport and general psychology was significantly lacking; only 2.8% to 16.4% of athletic trainers completed continuing education in any of the subject areas. The development of continuing education programs in sport psychology and clinical/counseling psychology issues of athletes is an area in which the NATA should particularly focus its efforts, especially given that athletic trainers have expressed dissatisfaction with their education and training in sport and clinical/counseling psychology (Ford & Gordon, 1997; Ford & Gordon, 1998; Gordon et al., 1991; Larson et al., 1996; Moulton et al., 1997; Wiese et al., 1991) and have indicated a desire for more information on the subject (Ford & Gordon, 1997; Gordon et al., 1991; Larson et al.,

1996; Moulton et al., 1997; Wiese et al., 1991). Attention also should be placed on revising current curriculum programs and NATA certification requirements, particularly in light of the fact that not all candidates who take the NATA certification examination are required to take a formal psychology course (i.e., to be eligible for the examination one must complete either a curriculum program that offers a psychology course or the internship route which has no formal psychology coursework/experiential requirements) (Cramer Roh & Perna, 2000). Given that most (60%) first-time candidates who take the certification examination pursue the internship route and that these candidates have greater difficulty passing all three components (i.e., written, written simulation, and practical) of the certification examination, providing organized instruction on clinical psychology issues is all the more important (Cramer Roh & Perna, 2000). Formal instruction and supervised training will enhance athletic trainers' confidence and skill in recognizing psychological distress, working with athletes on psychological issues, understanding their boundaries of competence, providing appropriate psychological referrals, and functioning as part of an interdisciplinary treatment team (Cramer Roh & Perna, 2000; Ford & Gordon, 1997). Additionally, taking psychology coursework will affect athletic trainers' feelings of competency in Cognitive-Behavioral Techniques, in particular, as indicated by the moderate effects obtained in this study.

### Summary of Study Results

Results indicated that athletic trainers accurately identified the athlete's psychological symptoms, depression diagnosis, and need for a mental health referral. When athletic trainers are provided sufficient information about an athlete's

psychological state, they are able to accurately identify and integrate his/her psychological symptoms to formulate a psychological diagnosis and use that information to make clinically appropriate referral recommendations. Athletic trainers were most likely to refer the athlete to a counselor/psychologist, followed by a sport psychology consultant and psychiatrist. Only a small percentage (26.9%) of the athletic trainers indicated that they would work with the athletes themselves, and showed a preference for using Supportive Interventions (e.g., active listening) over Cognitive-Behavioral Techniques (e.g., imagery). They also felt significantly more competent in providing Supportive Interventions than Cognitive-Behavioral Techniques, and the more competent athletic trainers felt in using a specific intervention, the more likely they were to use that intervention with the athlete. Their perceptions of competency in providing all forms of intervention (i.e., Physical Rehabilitation Techniques, Supportive Interventions, and Cognitive-Behavioral Techniques) were significantly enhanced if they had completed psychology coursework, and this effect was strongest for perceived competency in Cognitive-Behavioral Techniques. Given these results and the fact that only a small percentage of athletic trainers had completed coursework at the graduate and continuing education levels, athletic trainers likely could benefit from greater formal instruction in psychological issues of athletes. This instruction could help them implement basic techniques and counseling with athletes and/or better understand how and why these techniques are used so that they can support trained professionals' use of these techniques with athletes. Additionally, formal instruction and supervised training will serve only to enhance athletic trainers' confidence and skill in recognizing

psychological distress, understanding their boundaries of competence, providing appropriate mental health referrals, and functioning as part of an interdisciplinary treatment team (Cramer Roh & Perna, 2000; Ford & Gordon, 1997).

Among the independent factors examined, athletic trainer gender had the greatest effects on the dependent variables; female athletic trainers provided significantly higher ratings of Depressive Symptoms in the athlete, felt significantly more competent in using Supportive Interventions with athletes, and were more likely to use Supportive Interventions with the athlete (the latter result was nonsignificant, but produced small to moderate effects) than male athletic trainers. These results might be attributed to gender role socialization where females are encouraged to take on nurturing, caretaking roles that influence their skills and beliefs about dealing with their own and others' affect. Although the female athletic trainers appeared more comfortable dealing with the hypothetical athlete's emotions than the male athletic trainers, their differing levels of comfort did not lead to significant differences in their decisions regarding diagnosis or referral. None of the independent factors significantly impacted diagnosis ratings and for referral recommendations, the athlete's presenting problem had the most significant effect on referral to a variety of mental health and other professionals.

Athletic trainers were more likely to refer the injured athlete to an allied health professional and treat the injured athlete themselves compared to athletes with performance and/or relationship problems; they were least likely to refer the injured athlete for mental health treatment (i.e., to a counselor/psychologist or psychiatrist)

compared to the athletes with the other problems. The athlete with a relationship problem was most likely to be referred to a mental health professional and least likely to be referred to a sport psychology consultant. For referral to a sport psychology consultant, a significant athlete gender by presenting problem interaction was obtained with athletic trainers least likely to refer the male athlete experiencing a relationship problem to a sport psychology consultant compared to male and female athletes experiencing performance or injury concerns. For the female athlete experiencing a relationship problem, significant differences in referrals to a sport psychology consultant were obtained only in comparison to the male athlete with a performance problem; athletic trainers were less likely to refer the female athlete than the male athlete. Thus, athletic trainers were willing to refer the female athlete to a sport psychology consultant for a broader range of issues than the male athlete, possibly due to their beliefs that the female athlete would less likely feel stigmatized for seeking help from a sport psychology consultant for personal issues than the male athlete.

Finally, information gathered regarding athletic trainers' past referral practices to counselors/psychologists, psychiatrists, and sport psychology consultants indicated that most athletic trainers who had access to counselors/psychologists had previously referred to them, whereas they were less inclined to refer to psychiatrists or sport psychology consultants even when they were accessible to them. The primary reason athletic trainers cited for not referring to a mental health professional in the past was they had never encountered a situation that warranted a referral. Given the unlikelihood of this, it appears that athletic trainers still have difficulty identifying psychological

problems that would be appropriate to refer. When it came to referring to a sport psychology consultant, most athletic trainers indicated that they had not previously referred because they did not have access to one. This reported lack of access to sport psychology consultants suggests that more can be done to market the services of sport psychology consultants and to educate athletic trainers on sport psychology issues, particularly given athletic trainers' openness to referring to them.

### Study Limitations and Future Directions

#### *Limitations of the Analogue Research Design*

As mentioned previously, this study was the first to directly assess athletic trainers' abilities to identify depression in an athlete, make referral recommendations based on their assessment, and select psychosocial techniques to use with the athlete if he/she worked with him/her. As such, the research questions posed and methodology used were exploratory in nature, but represented improvements upon past related research that asked athletic trainers to retrospectively report their referral practices and/or psychosocial techniques used with athletes. To assess athletic trainers' abilities to deal with an athlete experiencing a psychological disorder, an analogue research design was chosen to simulate the experience an athletic trainer might have when working with a depressed athlete. Additionally, an analogue design allowed for the effects of athletic trainer gender, athlete gender, and athlete presenting problem on the dependent variables of interest to be tested, which would be difficult, if not impossible, to test in the real-world.

The random assignment of participants to the experimental groups allowed for tight control of the independent variables. In analogue research, the investigator can control every aspect of the stimuli provided to participants to ensure that the only difference between the stimuli provided to the experimental groups is the independent variable(s) of interest (Cook & Rumrill, 2005). Although internal validity is strong, external validity is weakened in analogue research due to the simulated nature of the methodology (Cook & Rumrill, 2005). As a result, the findings might not pertain to participants or in contexts that are not exactly like those in the investigation. In the current study, athletic trainers were provided detailed information about the athlete's depressive symptoms that the athlete might not have otherwise volunteered. In this respect, the scenario was different from what athletic trainers might experience in the real world. In practice, the athletic trainers likely would have needed to rely on their assessment skills or tools to obtain the extensive information provided in the vignette, and if this were the case, they might not have been as accurate in identifying the athlete's symptoms and diagnosis as they were in this study.

To minimize threats to external validity, Cook and Rumrill (2005) provided several suggestions, including developing simulated materials (e.g., written vignettes) that are as realistic and detailed as possible; using large, representative samples of research participants; replicating previous studies with slight variations in content or administration of the stimulus; and following-up analogue studies with *in vivo* experiments. The current study satisfied a couple of these suggestions by soliciting participation from a large number of participants who represented the membership of

the NATA and by utilizing a detailed vignette. Replicating previous research was not possible given that this study was the first of its kind to examine athletic trainers' abilities to recognize and intervene with a depressed athlete. Future research might include replication of this study with an athlete experiencing a different type of psychological disorder (e.g., anxiety) and/or different types of presenting problems. Additionally, it could be helpful to ask athletic trainers to report the frequency with which they encounter athletes experiencing the presenting problems used in the vignettes and to rate the importance of those problems in the athletes' lives. Although anecdotally the presenting problems used in this study (i.e., injury, sport performance decline, relationship break-up) appear relevant, the athletic trainers were not specifically asked how often they encounter athletes experiencing these issues and how relevant these issues are in their lives. Finally, as recommended by Cook and Rumrill, this analogue research was used as an initial inquiry into the research questions of interest and follow-up studies also could include real athletes in real situations. Possibly, athletes and athletic trainers could complete the same paper-and-pencil symptom checklist to allow for direct comparisons to be made between the athlete's self-reported symptoms and the athletic trainers' observations of their symptoms. Athletes and athletic trainers could complete these checklists on multiple occasions to determine if athletic trainers are sensitive to fluctuations in the athlete's mood and symptoms over time. At each timepoint, athletic trainers also could complete additional questions to assess their decisions regarding referral and use of psychosocial interventions.



### *Response Rate*

In addition to limits to external validity, a potential limiting factor in this study was the response rate (20.7%). This response rate is considered low for traditional psychological research using paper-and-pencil surveys, but is comparable to other research that has examined response rates to Internet surveys (e.g., 21%, Andrews, Nonnecke, & Preece, 2003; 25.4%, Kaplowitz, Hadlock, & Levine, 2004; 27.9% Roster, Rogers, Albaum, & Klein, 2004) and is higher than others (e.g., 9.6% to 16.1%, Porter & Whitcomb, 2003). Thus, the response rate obtained in this study was average compared to other Internet-based research.

Despite the average response rate and sufficient number of participants to answer the research questions (with the exception of the questions regarding use of psychosocial interventions, as the group in the performance problem condition was dropped and power was low), exploring factors that might have affected potential participants' decisions to respond to the survey is warranted. One possible factor relates to the manner in which participants were solicited for participation (i.e., via e-mail conducted by the NATA). The principal investigator did not solicit participants directly; the NATA randomly pulled potential participants from their database and e-mailed the solicitation letter composed by the investigator. As a result, the investigator lost some control over selection of the participants and had to rely on the NATA to ensure that the proper number of participants was selected and that the e-mails were sent correctly. However, given the NATA's experience assisting researchers in obtaining samples from their database (e.g., the NATA has formal procedures for obtaining samples outlined on

their Website) and that the investigator's e-mail address was provided as the reply-to address for the e-mail sent by the NATA (i.e., e-mails that did not transmit successfully due to incorrect e-mail addresses and/or spam-blocking features of the participants' e-mail systems "bounced back" to the investigator, not to the NATA, allowing the investigator to track the number of e-mails that did not transmit), it is possible to be reasonably confident that participants were solicited appropriately.

Another factor that affected the response rate was the formatting of the online questionnaires. The questionnaires were programmed such that participants who completed the symptoms, diagnosis, referral, and use of psychosocial techniques questionnaires prior to the demographic questions were dropped from the data set if they failed to complete all items critical to the research questions. The questionnaires were programmed to alert the participant to missing responses; however, if the participant failed to provide the necessary information, the information from that set of questions was deleted. Since these participants did not provide demographic information prior to the symptoms, diagnosis, referral, and use of psychosocial techniques questionnaires, it appeared in the data set as if they had never responded to the survey. Thus, the response rate might have been higher than reported, but it is impossible to determine by how much.

It also is possible that factors unrelated to the technology used in the investigation affected the response rate. Perhaps athletic trainers who were uninterested or unreceptive to psychological issues related to athletes and athletic training did not respond to the survey. If this were the case, athletic trainers who were

more open to understanding psychological issues among athletes or who were more sophisticated in their knowledge of psychological issues might have been the ones to respond to the survey. A biased sample could have affected the conclusions drawn in this study regarding athletic trainers' abilities to deal with athletes experiencing psychological disorders, if responses from a more knowledgeable sample translated into more accurate assessments of the athlete's psychological problems. Given that the study results indicated that only a limited number of participants received formal instruction or supervision in psychological issues, however, it is unlikely that participants' greater knowledge and/or experience impacted the results.

Related to the overall response rate, another potential limitation was the discrepancy between the number of male and female respondents. More female athletic trainers (22.4%) responded to the survey than male athletic trainers (17.1%). Given that athletic trainer gender was an important independent variable, this could have implications for conclusions drawn in this study. Athletic trainer gender significantly influenced athletic trainers' identification of the athlete's symptoms, feelings of competency in using psychosocial interventions, and use of psychosocial interventions. Similar to the explanation provided for the overall response rate, it is possible that the higher response rate by female athletic trainers than male athletic trainers was due to female athletic trainers' greater knowledge and/or interest in athletes' psychological issues. Although this explanation cannot be ruled out completely, comparisons between the male and female athletic trainers on a variety of demographic variables indicated that they were only significantly different with respect to age, the year their academic

degree was earned, their current work settings as athletic trainers, the sport teams with which they worked, the completion of a graduate-level course in abnormal psychology/psychopathology, and their access to a psychiatrist. Except for the difference obtained for completion of abnormal psychology coursework (where a higher percentage of males completed coursework than females), there were no significant differences in potentially confounding variables such as general and sport psychology coursework completed; sport psychology supervision received; previous referrals to counselors/psychologists, psychiatrists, or sport psychology consultants; or perceptions of the roles of athletic trainers. Thus, it is unlikely that the results obtained in this study were due to pre-existing differences between the male and female athletic trainers.

#### *Future Directions*

This study served as an initial inquiry into athletic trainers' abilities to deal with athletes' psychological problems and warrants further investigation. Athletic trainers play an important role in the lives of athletes and have the potential to positively contribute to their physical and emotional well-being. As mentioned previously, researchers could expand upon the current study in a variety of ways. First, the study could be replicated using a hypothetical athlete experiencing a different psychological disorder or presenting problem(s), and athletic trainers could report the frequency with which they encounter those presenting problems in their work with athletes and rate the importance of those problems in the athletes' lives. Second, to improve external validity, *in vivo* experiments could be conducted where athletes and athletic trainers complete the same symptom checklists incorporating a variety of cognitive, affective,

and behavioral symptoms followed by athletic trainers' recommendations regarding referral and use of psychosocial techniques. Finally, future research could further clarify data related to athletic trainers' referral practices and completed coursework in sport and general psychology. Information obtained from additional research will assist mental health professionals, athletic trainers, and their corresponding governing organizations in understanding deficits in athletic trainers' abilities to work with athletes' psychological issues and in developing educational programs and training experiences that will enhance their knowledge and skills in these areas. This information will only be valuable, however, if mental health and allied health professionals work together to communicate their findings and develop interdisciplinary programs.

APPENDIX A  
DEMOGRAPHIC QUESTIONNAIRE

## General Demographic Information

1. Please indicate your gender:     Male     Female
2. Please type your age:
3. Please indicate your race/ethnicity:  
 White, Non-Hispanic                     Asian/Asian American  
 Black, Non-Hispanic                     Other (please specify )  
 Hispanic
4. What is your highest degree?  
 BA/BS     MD  
 MA/MS     Other (please specify )  
 PhD/PsyD/EdD
5. In what year did you receive your highest degree (e.g., 1995)?
6. In what area was your highest degree awarded?  
 Athletic training                             Physical education  
 Physical therapy                             Education  
 Kinesiology                                     Other (please specify )  
 Exercise science

7. What is your current occupation(s)? Please rank your occupation(s) based upon the amount of time you dedicate to each one during an average week (e.g., rank "1" for your primary occupation, that is, the one you spend the most time in; "2" for your secondary occupation, etc.). If an occupation does not apply, please leave that item blank.

\_\_\_\_\_ Athletic trainer  
\_\_\_\_\_ Physical therapist  
\_\_\_\_\_ Coach/Asst. coach  
\_\_\_\_\_ College/University professor  
\_\_\_\_\_ High school teacher  
\_\_\_\_\_ Other (please list \_\_\_\_\_)

8. In which of the following settings do you work as an athletic trainer? (please check the one that applies best)

\_\_\_\_\_ High School (Public)  
\_\_\_\_\_ High School (Private)  
\_\_\_\_\_ Community College  
\_\_\_\_\_ 4-Yr College/University  
\_\_\_\_\_ Hospital  
\_\_\_\_\_ Sports Medicine Clinic  
\_\_\_\_\_ Amateur/Professional Sports Organization  
\_\_\_\_\_ Private Practice  
\_\_\_\_\_ Other (please specify \_\_\_\_\_)

9. With which sport team do you primarily work? (please check the one that applies best)

\_\_\_\_\_ Football  
\_\_\_\_\_ Basketball  
\_\_\_\_\_ Baseball  
\_\_\_\_\_ Softball  
\_\_\_\_\_ Soccer  
\_\_\_\_\_ Cross Country/Track & Field  
\_\_\_\_\_ Tennis  
\_\_\_\_\_ Swimming & Diving  
\_\_\_\_\_ Gymnastics  
\_\_\_\_\_ Volleyball  
\_\_\_\_\_ Wrestling  
\_\_\_\_\_ Golf  
\_\_\_\_\_ Crew  
\_\_\_\_\_ Cross Country/Downhill Ski  
\_\_\_\_\_ Other (please specify \_\_\_\_\_)



10. Licenses or current certifications (check all that apply)

- NATABOC Certification
- State license/certificate
- Other (please specify \_\_\_\_\_)

11. Please indicate which of the following courses you have taken at a university/college at both the undergraduate and graduate levels (including distance and on-line learning), and as Continuing Education offered through national, regional, or state professional associations (please check all that apply).

	Undergraduate Level	Graduate Level	Continuing Education
Sport and Exercise Psychology	_____	_____	_____
Psychology of Injury/ Rehabilitation in Sport	_____	_____	_____
Abnormal Psychology/ Psychopathology	_____	_____	_____
Counseling Skills and Techniques	_____	_____	_____

12. In which of the following areas has your work been supervised? (check all that apply)

- Athletic training
- Physical therapy
- Sport psych/counseling with individual athletes
- Sport psych/counseling with Sport teams

13. In your work as an athletic trainer, do you have access to a *counselor* or *psychologist*?

(*Counselors/psychologists* are professionals who provide counseling or psychotherapy to individuals experiencing psychological disorders and other cognitive, behavioral, emotional, and social concerns.)

\_\_\_\_\_ Yes                      \_\_\_\_\_ No

14. Have you ever referred an athlete to a *counselor* or *psychologist*?

\_\_\_\_\_ Yes                      \_\_\_\_\_ No

15. If you answered "Yes" for Question #14, please list some of the reasons why you have referred an athlete(s) to a *counselor* or *psychologist*.

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16. If you answered "Yes" to Question #14, how helpful do you think the *counselor* or *psychologist* was in assisting the athlete(s)?

	Not at all helpful			Extremely helpful	
Counselor/psychologist's level of helpfulness	1	2	3	4	5

17. If you answered "No" to Question #14, please list some of the reasons why you have not referred an athlete(s) to a *counselor* or *psychologist*.

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18. In your work as an athletic trainer, do you have access to a *psychiatrist*?

(A *psychiatrist* is a professional who evaluates and treats individuals with mental and emotional disorders, primarily with medication.)

\_\_\_\_\_ Yes                      \_\_\_\_\_ No

19. Have you ever referred an athlete to a *psychiatrist*?

\_\_\_\_\_ Yes                      \_\_\_\_\_ No

20. If you answered "Yes" for Question #19, please list some of the reasons why you have referred an athlete(s) to a *psychiatrist*.

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21. If you answered "Yes" to Question #19, how helpful do you think the *psychiatrist* was in assisting the athlete(s)?

	Not at all helpful		Extremely helpful		
Psychiatrist's level of helpfulness	1	2	3	4	5

22. If you answered "No" to Question #19, please list some of the reasons why you have not referred an athlete(s) to a *psychiatrist*.

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23. In your work as an athletic trainer, do you have access to a *sport psychology consultant*?

(A *sport psychology consultant* is a professional who educates others about the role of psychological factors in exercise, physical activity and sport, and teaches them specific cognitive, behavioral, emotional, and psychosocial skills to use in these contexts.)

\_\_\_\_\_ Yes                      \_\_\_\_\_ No

24. Have you ever referred an athlete to a *sport psychology consultant*?

\_\_\_\_\_ Yes                      \_\_\_\_\_ No

25. If you answered "Yes" for Question #24, please list some of the reasons why you have referred an athlete(s) to a *sport psychology consultant*.

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26. If you answered "Yes" to Question #24, how helpful do you think the *sport psychology consultant* was in assisting the athlete(s)?

	Not at all helpful		Extremely helpful		
Sport psychology consultant's level of helpfulness	1	2	3	4	5

27. If you answered "No" to Question #24, please list some of the reasons why you have not referred an athlete(s) to a *sport psychology consultant*.

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28. Please indicate the extent to which you believe the following statements are consistent with the roles of a certified athletic trainer.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
An athletic trainer facilitates psychological recovery from injury by using psychosocial techniques in rehabilitation (e.g., goal setting).	1	2	3	4	5
An athletic trainer facilitates appropriate referral for athletes' personal issues (e.g., stress, identity issues).	1	2	3	4	5
An athletic trainer counsels athletes on personal issues (e.g., stress, identity issues).	1	2	3	4	5
An athletic trainer administers therapeutic treatments to facilitate physical recovery from injury (e.g., thermal or electrical modalities).	1	2	3	4	5

29. Please indicate how competent you feel, in general, about using each of the following interventions.

	Not at All Competent	Somewhat Competent	Moderately Competent	Quite Competent	Extremely Competent
Setting realistic goals for treatment.	1	2	3	4	5
Teaching thought control techniques (e.g., thought stoppage) to encourage positive thinking, reduce negative mood, and/or enhance self-confidence.	1	2	3	4	5
Teaching effective communication skills (e.g., assertive behavior).	1	2	3	4	5
Teaching/using cognitive relaxation techniques to reduce worry/tension (e.g., positive self-talk).	1	2	3	4	5
Teaching/using muscular relaxation techniques to reduce physical tension (e.g., diaphragmatic breathing).	1	2	3	4	5
Improving social support (e.g., keeping athlete involved with team, enlisting coach's support).	1	2	3	4	5

	Not at All Competent	Somewhat Competent	Moderately Competent	Quite Competent	Extremely Competent
Teaching/using mental rehearsal/ visualization (e.g., imagery).	1	2	3	4	5
Teaching concentration skills (e.g., shifting attentional focus).	1	2	3	4	5
Providing emotional support through use of active listening and positive communication (e.g., being empathic and caring).	1	2	3	4	5
Positively reinforcing the athlete's efforts to change.	1	2	3	4	5
Facilitating athlete's understanding of injury and rehabilitation.	1	2	3	4	5
Creating variety in rehabilitation exercises.	1	2	3	4	5

Over the next few pages, you will be asked to read a scenario involving an athlete and then to respond to several questions about the athlete's symptoms, problems/diagnoses, and treatment options. There are no right or wrong answers, so please respond honestly as to how you would handle this athletic situation.

APPENDIX B  
SYMPTOM RATINGS



## Symptom Ratings

30. To what extent are the following symptoms present for Mike/Michelle?

	Not at All	A Little	Moderately	Quite a Bit	Extremely
Concentration problems	1	2	3	4	5
Irritability	1	2	3	4	5
Hallucinations/delusions (e.g., hearing voices)	1	2	3	4	5
Hopelessness	1	2	3	4	5
Sleep difficulties	1	2	3	4	5
Sadness	1	2	3	4	5
Fatigue	1	2	3	4	5
Personality disturbance	1	2	3	4	5
Worry	1	2	3	4	5
Low self-esteem	1	2	3	4	5
Eating disturbance	1	2	3	4	5
Tension	1	2	3	4	5
Suicidal thinking	1	2	3	4	5
Lack of interest in activities	1	2	3	4	5
Restlessness/agitation	1	2	3	4	5
Physical pain	1	2	3	4	5
Anger	1	2	3	4	5
Helplessness	1	2	3	4	5
Social isolation	1	2	3	4	5

	Not at All	A Little	Moderately	Quite a Bit	Extremely
Increased use of substances (e.g., alcohol, drugs)	1	2	3	4	5

APPENDIX C  
PROBLEM RATINGS

### Problem Ratings

31. Which of the following problems is Mike/Michelle currently experiencing?

	Not at All	A Little	Moderately	Quite a Bit	Extremely
Mike/Michelle is experiencing romantic relationship problems.	1	2	3	4	5
Mike/Michelle is experiencing difficulties with injury rehabilitation.	1	2	3	4	5
Mike/Michelle is having sport performance problems.	1	2	3	4	5

APPENDIX D  
DIAGNOSIS RATINGS

## Diagnosis Ratings

32. Please indicate the extent to which Mike/Michelle appears to have each of the following types of psychological disorders.

	Disorder Not Likely		Disorder Somewhat Likely		Disorder Extremely Likely
Anxiety Disorder	1	2	3	4	5
Sleep Disorder	1	2	3	4	5
Adjustment Disorder	1	2	3	4	5
Depressive Disorder	1	2	3	4	5
Substance Abuse	1	2	3	4	5

APPENDIX E  
REFERRAL RATINGS

## Referral Ratings

33. Based upon the information provided in the scenario and your perception of Mike's/Michelle's primary problem/symptoms, how likely would you refer Mike/Michelle to:

	Not at All Likely	1	2	Somewhat Likely	3	4	Extremely Likely	5
Coach/Assistant Coach	1	2	3	4	5			
Counselor/Psychologist*	1	2	3	4	5			
Physical Therapist	1	2	3	4	5			
Physician	1	2	3	4	5			
Psychiatrist**	1	2	3	4	5			
Sport Psychology*** Consultant	1	2	3	4	5			
I would treat Mike/ Michelle myself	1	2	3	4	5			
I would do nothing	1	2	3	4	5			

\* *Counselors/psychologists* are professionals who provide counseling or psychotherapy to individuals experiencing psychological disorders and other cognitive, behavioral, emotional, and social concerns.

\*\* *Psychiatrists* are professionals who evaluate and treat individuals with mental and emotional disorders, primarily with medication.

\*\*\* *Sport psychology consultants* are professionals who educate others about the role of psychological factors in exercise, physical activity and sport, and teach them specific cognitive, behavioral, emotional, and psychosocial skills to use in these contexts.



34. Please briefly discuss your recommendations regarding referral.

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35. Did you indicate that you would be *somewhat likely* to *extremely likely* to treat Mike/Michelle yourself (in question #33 above)?

\_\_\_\_\_ Yes

\_\_\_\_\_ No

APPENDIX F  
PSYCHOSOCIAL INTERVENTION RATINGS

### Psychosocial Intervention Ratings

36. If you were to treat Mike/Michelle yourself, please indicate the likelihood that you would use each of the following interventions as part of your treatment plan.

	Not at All Likely	Somewhat Likely	Moderately Likely	Quite Likely	Extremely Likely
Set realistic goals for treatment.	1	2	3	4	5
Teach thought control techniques (e.g., thought stoppage) to encourage positive thinking, reduce negative mood, and/or enhance self-confidence.	1	2	3	4	5
Teach effective communication skills (e.g., assertive behavior).	1	2	3	4	5
Teach/use cognitive relaxation techniques to reduce worry/tension (e.g., positive self-talk).	1	2	3	4	5
Teach/use muscular relaxation techniques to reduce physical tension (e.g., diaphragmatic breathing).	1	2	3	4	5
Improve social support (e.g., keep Mike/Michelle involved with team, enlist coach's support).	1	2	3	4	5
Teach/use mental rehearsal/visualization (e.g., imagery).	1	2	3	4	5

	Not at All Likely	Somewhat Likely	Moderately Likely	Quite Likely	Extremely Likely
Teach concentration skills (e.g., shifting attentional focus).	1	2	3	4	5
Provide emotional support through use of active listening and positive communication (e.g., be empathic and caring).	1	2	3	4	5
Positively reinforce Mike's/Michelle's efforts to change.	1	2	3	4	5
Facilitate Mike's/Michelle's understanding of injury and rehabilitation.	1	2	3	4	5
Create variety in rehabilitation exercises.	1	2	3	4	5

37. Please discuss the course of action you would take with Mike/Michelle including the focus of treatment and specific treatment techniques.

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APPENDIX G  
ATHLETE VIGNETTES

## Injury Problem Vignette

**Please read the following scenario about Mike/Michelle, a college basketball player that you have been treating. After reading the scenario, please answer the following questions.**

Mike/Michelle is an 18 year-old single, Caucasian male/female. He/she is a freshman college student who competes on his/her university's Division I basketball team. Over the last few months, you have had the opportunity to get to know Mike/Michelle pretty well through his/her daily visits to the training room to ice a previous injury. In general, you think Mike/Michelle is a hard-working, energetic, and positive person to be around.

By talking with him/her in the training room, you learn that during high school, Mike/Michelle was a star basketball player and was heavily recruited by many college programs. So far in college, Mike/Michelle has continued to be successful in basketball, as well as in academics and friendships. During his/her first semester of school, Mike/Michelle earned a 3.6 GPA. Now in his/her second semester of college, he/she is in the middle of his/her first college basketball season. On the basketball team, he/she is the starting forward, is shooting 60% from the field, and is averaging just over 15 points/game. He/she is also one of the team's best free throw shooters, with an 89% average. Mike/Michelle also is very social at school, forming close friendships with many of his/her teammates. Currently, he/she lives in an on-campus dorm with another freshman teammate. Although Mike/Michelle feels good about the friendships he's/she's developed at college, he's/she's stated that he/she misses his/her family and wishes he/she could see them more often. His/Her family still lives in the town where he/she grew up, which is located over 1000 miles away from where he/she is going to school.

Three weeks ago, Mike/Michelle suffered a third degree ankle sprain while rebounding during the second half of a close game. Since that time, he/she has been unable to practice or compete with the team and spends most of the team's practice time in the training room completing rehabilitation exercises. When he/she visited the training room yesterday, Mike/Michelle told you that he/she was devastated by his/her slow recovery and was worried about not regaining his/her edge or starting position. As he/she talked with you, tears started to form in his/her eyes. Mike/Michelle said, "I have not been feeling like myself during the past few weeks." He/she commented that despite sleeping almost 10 hours a day, he/she feels tired most of the time. He/She stated that he/she seems to "just lack the motivation for basketball and school." In fact, he/she has missed a few classes and when he/she has attended, he/she has had considerable difficulty focusing. He/she often feels "on edge" and is distracted when he/she sits down to do his/her homework. He/she also reported that he/she spends a lot of time alone in his/her dorm room because he/she does not feel like socializing with friends or doing the things he/she used to enjoy. He/she has experienced some recent conflicts with his/her teammates, with several becoming angry because of his/her attitude. Mike/Michelle stated that he's/she's "tired of feeling this way" and wishes "this could all be over."

## Performance Problem Vignette

**Please read the following scenario about Mike/Michelle, a college basketball player that you have been treating. After reading the scenario, please answer the following questions.**

Mike/Michelle is an 18 year-old single, Caucasian male/female. He/she is a freshman college student who competes on his/her university's Division I basketball team. Over the last few months, you have had the opportunity to get to know Mike/Michelle pretty well through his/her daily visits to the training room to ice a previous injury. In general, you think Mike/Michelle is a hard-working, energetic, and positive person to be around.

By talking with him/her in the training room, you learn that during high school, Mike/Michelle was a star basketball player and was heavily recruited by many college programs. So far in college, Mike/Michelle has continued to be successful in basketball, as well as in academics and friendships. During his/her first semester of school, Mike/Michelle earned a 3.6 GPA. Now in his/her second semester of college, he/she is in the middle of his/her first college basketball season. On the basketball team, he/she is the starting forward, is shooting 60% from the field, and is averaging just over 15 points/game. He/she is also one of the team's best free throw shooters, with an 89% average. Mike/Michelle also is very social at school, forming close friendships with many of his/her teammates. Currently, he/she lives in an on-campus dorm with another freshman teammate. Although Mike/Michelle feels good about the friendships he's/she's developed at college, he's/she's stated that he/she misses his/her family and wishes he/she could see them more often. His/Her family still lives in the town where he/she grew up, which is located over 1000 miles away from where he/she is going to school.

Three weeks ago, Mike's/Michelle's sport performance began to significantly decline. During the past seven games, his/her performance has been consistently poor, with his/her seven-game field goal average dropping to just under 30% and his/her free throw average to 65%. As a result of his/her poor performance, he/she lost his/her starting position and has received substantially less playing time. When he/she visited the training room yesterday, Mike/Michelle told you that he/she was devastated by his/her slump and was worried that he/she would not be able to get out of it. As he/she talked with you, tears started to form in his/her eyes. Mike/Michelle said, "I have not been feeling like myself during the past few weeks." He/she commented that despite sleeping almost 10 hours a day, he/she feels tired most of the time. He/She stated that he/she seems to "just lack the motivation for basketball and school." In fact, he/she has missed a few classes and when he/she has attended, he/she has had considerable difficulty focusing. He/she often feels "on edge" and is distracted when he/she sits down to do his/her homework. He/she also reported that he/she spends a lot of time alone in his/her dorm room because he/she does not feel like socializing with friends or doing the things he/she used to enjoy. He/she has experienced some recent conflicts with his/her teammates, with several becoming angry because of his/her attitude.

Mike/Michelle stated that he's/she's "tired of feeling this way" and wishes "this could all be over."



## Romantic Relationship Problem Vignette

**Please read the following scenario about Mike/Michelle, a college basketball player that you have been treating. After reading the scenario, please answer the following questions.**

Mike/Michelle is an 18 year-old single, Caucasian male/female. He/she is a freshman college student who competes on his/her university's Division I basketball team. Over the last few months, you have had the opportunity to get to know Mike/Michelle pretty well through his/her daily visits to the training room to ice a previous injury. In general, you think Mike/Michelle is a hard-working, energetic, and positive person to be around.

By talking with him/her in the training room, you learn that during high school, Mike/Michelle was a star basketball player and was heavily recruited by many college programs. So far in college, Mike/Michelle has continued to be successful in basketball, as well as in academics and friendships. During his/her first semester of school, Mike/Michelle earned a 3.6 GPA. Now in his/her second semester of college, he/she is in the middle of his/her first college basketball season. On the basketball team, he/she is the starting forward, is shooting 60% from the field, and is averaging just over 15 points/game. He/she is also one of the team's best free throw shooters, with an 89% average. Mike/Michelle also is very social at school, forming close friendships with many of his/her teammates. Currently, he/she lives in an on-campus dorm with another freshman teammate. Although Mike/Michelle feels good about the friendships he's/she's developed at college, he's/she's stated that he/she misses his/her family and wishes he/she could see them more often. His/Her family still lives in the town where he/she grew up, which is located over 1000 miles away from where he/she is going to school.

Three weeks ago, Mike's/Michelle's girlfriend/boyfriend of the last three years, broke up with him/her. Mike/Michelle thought she/he was "the one" and hoped to marry her/him one day. When he/she visited the training room yesterday, Mike/Michelle told you that he/she was devastated by the breakup and was worried that he/she would never find another girlfriend/boyfriend like her/him. As he/she talked with you, tears started to form in his/her eyes. Mike/Michelle said, "I have not been feeling like myself during the past few weeks." He/she commented that despite sleeping almost 10 hours a day, he/she feels tired most of the time. He/She stated that he/she seems to "just lack the motivation for basketball and school." In fact, he/she has missed a few classes and when he/she has attended, he/she has had considerable difficulty focusing. He/she often feels "on edge" and is distracted when he/she sits down to do his/her homework. He/she also reported that he/she spends a lot of time alone in his/her dorm room because he/she does not feel like socializing with friends or doing the things he/she used to enjoy. He/she has experienced some recent conflicts with his/her teammates, with several becoming angry because of his/her attitude. Mike/Michelle stated that he's/she's "tired of feeling this way" and wishes "this could all be over."

APPENDIX H  
PARTICIPANT SOLICITATION LETTER

Dear Colleague:

As a certified athletic trainer, you play a central role in the lives of athletes. Your frequent contact with them during periods of health as well as injury, gives you the opportunity to get to know them as athletes and individuals. As a result, you have opportunities to understand and assist athletes with the range of concerns (e.g., physical, social, emotional) that they might experience.

As a member of the NATA, we are asking for your assistance with my doctoral dissertation project, which is being conducted at the University of North Texas under the supervision of Dr. Trent Petrie. This study will assess athletic trainers' backgrounds and experiences in athletic training and sport psychology, and how they work with athletes from both of these perspectives. The information you provide will help us to develop a better understanding of how athletic trainers work with and provide services to athletes under their care.

To assist us with this study, we ask that you please complete an online survey. The survey should take you approximately 15 to 20 minutes to complete. Your participation is completely voluntary and you may discontinue your participation at any time. Please note that you will not be asked to provide any identifying information on the survey. In addition, any reports or publications created from the results of this study will be presented solely in aggregate form. Completion and online submission of the survey indicate your informed consent to participate. To participate in this study, please click on the following link:

<http://www.surveymonkey.com/s.asp?u=25544540108>

If you have any questions or would like to receive a copy of the results of this study, please feel free to contact either me at [cbh0006@unt.edu](mailto:cbh0006@unt.edu) or Dr. Petrie through the University of North Texas Center for Sport Psychology and Performance Excellence (940-369-7767). Thank you in advance for your assistance.

This study has been approved by the University of North Texas Institutional Review Board for the Protection of Human Subjects (940-565-3940).

Sincerely,

Courtney Albinson, M.A.	Trent Petrie, Ph.D.
Ph.D. Candidate	Professor
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APPENDIX I  
INFORMED CONSENT FORM

Dear Certified Athletic Trainer,

Thank you for volunteering to participate in this study investigating certified athletic trainers' backgrounds, experiences, and practices in athletic training and sport psychology. The survey should take you approximately 15 to 20 minutes to complete. You will be asked to provide demographic information, read a brief scenario about an athletic situation, and respond to a series of questions regarding your assessment of the athletic situation. Although there may be no direct benefit of participation to you, the information you provide will help us to develop a better understanding of how athletic trainers work with and provide services to athletes under their care.

Your participation in this study is completely voluntary and you may discontinue your participation at any time. Please note that you will not be asked to provide any identifying information on the survey, nor will any identifying information be collected directly or indirectly through this Website. In addition, any reports or publications created from the results of this study will be presented solely in aggregate form. There are no known significant physical or psychological risks associated with this study. Completion and submission of the online survey indicate your informed consent to participate.

If you have any questions or would like to receive a copy of the results of this study, please feel free to contact Courtney Albinson, M.A. at [cbh0006@unt.edu](mailto:cbh0006@unt.edu) or Dr. Trent Petrie through the University of North Texas Center for Sport Psychology and Performance Excellence at (940) 369-7767. This study has been approved by the University of North Texas Institutional Review Board for the Protection of Human Subjects (940-565-3940). You may print a copy of this information for your records. Thank you in advance for your assistance.

I HAVE READ AND UNDERSTAND THE ABOVE INFORMATION AND VOLUNTARILY AGREE TO PARTICIPATE IN THIS STUDY. CLICK "NEXT>>" TO CONTINUE.

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