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The incidence of post-traumatic stress disorder symptoms in certified athletic trainers

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**THE INCIDENCE OF POST-TRAUMATIC STRESS DISORDER SYMPTOMS
IN CERTIFIED ATHLETIC TRAINERS**

A Thesis

Presented to

**The Faculty of the Department of Human Performance
San Jose State University**

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

by

Christopher P. Conner

December 1997

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ABSTRACT

THE INCIDENCE OF POST-TRAUMATIC STRESS DISORDER SYMPTOMS IN CERTIFIED ATHLETIC TRAINERS

by Christopher P. Conner

This study investigated the incidence of post-traumatic stress disorder (PTSD) symptoms in certified athletic trainers employed in the college/university athletic training setting. Research supports the theory that emergency personnel who experience trauma in their work environment on a regular basis often suffer from psychological effects related to the trauma. The Impact of Event Scale (IES), a Stress Checklist, designed from the Diagnostic Criteria for PTSD (APA, 1994), and a demographic questionnaire were used for data collection. Results indicate that athletic trainers witness and manage traumatic injuries regularly, and as a result, often suffer from PTSD symptoms. Two subjects were diagnosable for PTSD. The IES showed 64% of the subjects experienced PTSD symptoms, and the Stress Checklist identified 42% of the subjects suffered at least one PTSD symptom related to witnessing or managing an athletic injury. Social support received from coworkers was indicated as a predictor of PTSD risk.

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Chapter 1

Introduction

The domains of the athletic trainer, as defined by the National Athletic Trainers' Association (1996), are (1) prevention of athletic injuries, (2) recognition, evaluation and immediate care of athletic injuries, (3) rehabilitation and reconditioning of athletic injuries, (4) health care administration, and (5) education and counseling. Athletic trainers are found in traditional arenas, such as high schools, colleges/universities, and professional sports, and non-traditional arenas, such as sports medicine clinics, hospitals and industrial settings.

The athletic trainer is often responsible for attending athletic practices and competitions, which may require supervising a large number of athletes, participating in several different activities, depending on a particular sport and the demands of the sport. During those events, the athletic trainer remains close to the activity, so he/she may respond to an injury within moments after the injury has occurred (Arnheim & Prentice, 1993). Many times, the athletic trainer will actually witness an injury as it happens.

Witnessing an injury can help the athletic trainer evaluate the injury by having seen the mechanism of the injury. The severity of an injury may also dictate the athletic trainer's response. When a major injury occurs, such as a deformation of an athlete's body part or even a life threatening injury that requires activation of emergency personnel, athletic trainers must

respond to that situation with complete attention, undistracted by other physical or mental activity. In response to an injury, the athletic trainer must be able to react efficiently so the athlete has the best chance for a full and quick recovery.

However, witnessing an athlete being injured, whether life-threatening or minor, may also have a negative psychological impact (American Psychiatric Association, 1994). Studies by Armstrong, O'Callahan, and Marmar (1991) and Kuch, Travis, and Collins (1995) that have examined the effects of traumatic situations on emergency personnel (i.e., police officers, firefighters, EMT/paramedics) show that working and dealing with traumatic injury situations can have a negative impact on one's psychological state. Studies by Klamen, Grossman, and Kopacz (1995) and Baker, Menard, and Johns (1989) indicate that professionals such as resident physicians and armed forces nurses have shown symptoms of post-traumatic stress disorder following single or repetitive exposure to traumatic situations on the job.

Bryant and Harvey (1996) investigated the relative levels of post-traumatic stress in firefighters following involvement with different stressors. The diagnostic criteria utilized by these authors came from the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) published by the American Psychiatric Association (1994). The questionnaires used for data collection were designed to determine general psychological distress, and to establish the incidence of post-traumatic stress.

Specifically relating post-traumatic stress disorder to witnessing or dealing with trauma or injury of individuals, 32% of the firefighters reported motor vehicle accidents, search and rescue operations, and reported suicide as the event which had the greatest impact on them as a firefighter. Seventeen percent of the firefighters reported significant post-traumatic stress related to firefighting duties, and 9% reported extreme post-traumatic stress. The authors prediction, that firefighters who had experienced multiple traumas would report higher levels of post-traumatic stress, was supported, given that the severity of trauma or traumas and threat are more important predictors of post-traumatic stress than the type of stressor.

In a similar study, Klamen, Grossman, and Kopacz (1995) investigated the incidence of post-traumatic stress disorder in a sample of resident physicians attempting to fulfill the requirements to become a Doctor of Medicine (MD). These authors considered the possible relationship between depressive and anxious symptoms and post-traumatic stress disorder. Two-hundred-twelve subjects were given a standardized questionnaire to determine whether their internship experiences as a resident physician could cause post-traumatic stress disorder, in addition to investigating the relevance of depression and anxiety to the overall diagnosis. The authors used the DSM-III-R (APA, 1987) as the instrument for diagnosing post-traumatic stress disorder. The study revealed that 13% of the subjects polled met the

diagnostic criteria for post-traumatic stress disorder related to their experiences as residents physicians.

In many ways, the athletic trainer maintain similar responsibilities as resident physicians, nurses, firefighters, police officers, and EMT/paramedics. The athletic trainer often works in an emergency situation and often deals with orthopedic injuries. In addition, they often manage an injury until that scene has been cleared of danger. Finally, the athletic trainer may report the status of an injury to other medical professionals and the athlete's immediate family (Arnheim & Prentice, 1993). Therefore, athletic trainers, much like other emergency service personnel, can be subject to psychological distress as a result of being directly associated and responsible for an injury/trauma situation.

Post-traumatic stress falls into the category of Anxiety Disorders. The American Psychiatric Association (1994) states:

The essential feature of post-traumatic stress disorder is the development of characteristic symptoms following exposure to an extreme traumatic stressor involving direct personal experience of an event that involves actual or threatened death or serious injury, or other threat to one's physical integrity; or witnessing an event that involves death, injury, or a threat to the physical integrity of another person (p. 424).

For individuals to be diagnosed with post-traumatic stress, they must experience symptoms that fall within specific guidelines. First, an individual must experience the symptoms for a minimum of 1 month. A diagnosis of 'Acute' post-traumatic stress disorder means the symptoms persisted in a

range of 1 to 3 months. 'Chronic' post-traumatic stress disorder means symptoms last 3 months or longer. Post-traumatic stress disorder can have a delayed onset, which indicates that the symptoms may begin several months after the traumatic event initially occurred (APA, 1994).

Victims of post-traumatic stress disorder can suffer from a wide range of symptoms (Appendix A). Difficulty sleeping, irritability or anger, and concentration deficits are just a few of the symptoms that individuals may experience. Also, individuals often attempt to avoid the memory of traumatic event, or the memory of the traumatic event will intrude upon their thoughts of the individual, without them being able to control the intrusive thoughts (APA, 1994).

Several other factors exist in an individual's diagnosis with post-traumatic stress disorder that may decide the severity of the symptoms. The DSM-IV lists and discusses such factors as an individual's specific culture or age, the prevalence of post-traumatic stress disorder in particular communities, the course of post-traumatic stress disorder, the manner in which the disorder can come into existence, and the role in which it plays in an individual's daily life (APA, 1994).

Statement of the Purpose

The primary purpose of this study was to identify the incidence of post-traumatic stress disorder symptoms in a population of certified athletic trainers who are currently employed in the traditional athletic training

setting, where witnessing and dealing with athletic injuries, is a common experience. Secondly, the study identified differences based upon the demographics of the subject pool (i.e., gender, age, years of experience, level of social support, and number of traumatic events witnessed).

Null Hypothesis

The subject pool utilized in this study will not reveal post-traumatic stress disorder symptoms at a clinically significant level, nor will there be differences with regard to gender, age, years of experience, level of social support, and number of traumatic events witnessed based on the methods used for identifying this particular disorder.

Delimitations

This study is delimited by the following factors:

1. All subjects will be Certified Athletic Trainers within the United States of America.
2. Only individuals who currently work in the traditional college/ university sports setting will be included as subjects.
3. No subjects will be personally known by the researcher.

Limitations

This study is limited in the following ways:

1. The researcher must rely on the honesty and integrity of the subject pool.

2. All data collected will be through questionnaires, not one-on-one interviews.
3. The researcher is not qualified to diagnose post-traumatic stress disorder.
4. The collection of data will focus on major events, and not the accumulation of constant minor events.
5. Subjects who currently suffer from PTSD, or feel they may suffer from PTSD, may not respond to the survey, or may respond more often if they have had an experience they want to talk about.
6. The questionnaires utilized in this study have not been validated with athletic trainers.
7. Assumptions will be made about a subjects risk of post-traumatic stress disorder based on the response to the survey questionnaires.

Definition of Terms

The following terms are defined as they will be used in the study:

Athletic training. An allied health profession that provides health care to organized athletic populations (American Medical Association, 1990).

Certified athletic trainer. An allied health professional that provides health care to organized athletic populations and is certified by the National Athletic Trainers' Association (American Medical Association, 1990).

Post-traumatic stress. An identified psychiatric disorder that can develop as a result of exposure to a traumatic event that is beyond the range of usual human experience (American Psychiatric Association, 1994).

Traditional sports setting. An on-site facility that provides athletic training services to athletes of secondary schools, colleges and universities, professional sports and sports medicine clinics (National Athletic Trainers' Association, 1996).

Witness. One who can give a firsthand account of something seen, heard, or experienced; an attestation to a fact, a statement, or an event (American Heritage Dictionary of the English Language, 1992).

Traumatic. An emotional wound or shock that creates substantial, lasting damage to the psychological development of a person, often leading to neurosis (American Heritage Dictionary of the English Language, 1992).

Chapter 2

Review of Literature

The following body of literature is an investigation into the incidence of PTSD in emergency personnel. The athletic trainer is specifically responsible for first response and management of those injury and life threatening situations within the realm of athletics, sport practice, and competition (Arnheim & Prentice, 1993).

The review of literature will be divided into sections, based on the different arenas where PTSD may be found, and based on the manner in which particular personnel are exposed to traumatic situations. The sections are as follows: (1) from railway spine to PTSD, which is an historical account of the development of what has become PTSD, (2) PTSD and Vietnam nurses, which examines the account of the military nurse with relation to PTSD, (3) PTSD and disaster relief, which studies the responses of disaster relief personnel following isolated disasters, (4) PTSD and firefighters, which studies PTSD in firefighters resulting from exposure to their daily job responsibilities, (5) PTSD in police officers, which also looks at PTSD in police officers resulting from their daily job responsibilities, (6) PTSD and other personnel, which includes the examination of PTSD among service personnel whose jobs require them to be responsible for the safety and comfort of large groups of people, and (7) a summary and proposal.

The purpose of this study will be to determine the incidence of PTSD type symptoms in athletic trainers. Utilizing this review of literature, an original base of research can be established for PTSD in athletic trainers.

From Railway Spine to PTSD

This section will review the history of PTSD, from the original conceptual basis of PTSD. Several recent articles are examined, to show the process taken by researchers to establish the name for this anxiety disorder.

Kinzie and Goetz (1996) produced a complete history of PTSD dating back to the mid- 1800's. Citing Trimble, Kinzie and Goetz first described railroad spine syndrome, which was organic in nature, that was assumed to cause the symptoms such as anxiety, memory and concentration problems, irritability, and disturbed sleep. Kinzie and Goetz claim that Hawthorne described another organic problem, irritable heart, that was causing soldiers to suffer from symptoms of nervousness, headache, dizziness, and disturbed sleep. Kinzie and Goetz explained that these early observations attempted to classify the obvious neuroses as being physical in their origin.

Citing Micale, Kinzie and Goetz described three of the typical neuroses identified during the time as hysteria, hypochondria and melancholia, the one receiving the most attention being hysteria. Women were the only individuals who were expected to suffer from hysteria, but if men showed such signs, it was assumed to be traumatic in nature. Kinzie and Goetz cited Janet, whom evaluated hysteria in reaction to overwhelming stress that could

cause subsequent symptoms. The authors also cited Steirlin, whom identified "traumatic neurosis" that would be recognized by several symptoms including sleep disturbance, tremors and loss of energy. During World War I, these symptoms were known as "shell shock". The authors claimed that Babinski and Froment attempted to differentiate between the organic hysteria and the emotional form of hysteria. "Shell shock" was the accepted terminology for a list of symptoms that seemed to be caused by being subject to traumatic situations well into and past World War II. In 1952, "shell shock" was abandoned as the accepted terminology, and "Gross Stress Reaction" was identified in the Diagnostic and Statistical Manual of Mental Disorders (APA, 1952). From that point, Kinzie and Goetz (1996) portrayed a disorder that has evolved from organic in nature to, as classified in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, being the result of experiencing, witnessing or being confronted by a traumatic event that is beyond the range of usual human experience (APA, 1994).

In an account of PTSD history, Green, Lindy, and Grace (1985) discussed the diagnostic criteria of PTSD with specific reference to the Diagnostic and Statistical Manual of Mental Disorders, Third Edition (APA, 1980). Green et al. maintain that further evaluation must take place to determine the etiology and diagnostic specificity of PTSD.

In 1980, Horowitz, Wilner, Kaltrieder, and Alvarez conducted a study to identify the signs and symptoms of PTSD as it would appear in the DSM-III

(APA, 1980). The authors used the University of California, Berkeley psychiatry clinic an opportunity to gather subjects for the study. Officials who were trained to work with patients having stress response syndromes interviewed subjects who had been previously evaluated at the clinic.

Horowitz et al. used the Impact of Event Scale (Horowitz, Wilner, & Alvarez, 1979), a 90-item symptom checklist, a stress response rating scale, and several other scales to narrow down the 12 specific symptoms for PTSD as found in the DSM-III. Horowitz et al. (1980) stated that "the most frequent signs and symptoms of stress responses syndromes, present in three quarters of the population studied, are intrusive ideas and feelings that tend to repeat aspects of the experience of the inciting event and reactions to it" (p. 91).

Davidson and Foa (1991) considered some diagnostic issues of PTSD after the DSM-III (APA, 1980) was revised in 1987. Davidson and Foa posed several questions regarding the initial criterion for an individual to be diagnosed with PTSD. They submitted that the individual can suffer from any of the symptoms identified in the DSM-III-R (APA, 1987), but unless the initial criterion was specific and concise, the individual may not fit into the diagnostic criteria. So, Davidson and Foa, suggested that the initial criterion should answer "which events are outside the usual human experience", "can PTSD occur from an event within the usual human experience", "does extreme stress always result in PTSD", and "what particular stressors cause PTSD"? Davidson and Foa agreed with Green et al. (1985) in that classifying

post-traumatic stress disorder in the DSM-IV (APA, 1994) depends heavily on the changes and developments in the etiology and diagnostic specificity of PTSD.

In analyzing the conflict between the current knowledge of PTSD and the original conceptual basis of PTSD, Yehuda and McFarlane (1995) concluded that PTSD allows researchers to study the relationships between stress and trauma, and the diagnosis of such a disorder has allowed these researchers to obtain data that would not have been accessible if a diagnosis did not exist. Yehuda and McFarlane were satisfied that PTSD has revealed "biological, psychological, and phenomenological dimensions" (p. 1710).

Young (1995) implied, and the research has supported that most PTSD studies have been conducted on combat veterans, and researchers have attempted to compare particular populations to the combat veteran population. Young also stated that the symptoms of PTSD can mimic many other syndromes, but what separates PTSD from other syndromes is an actual event in one's life that promotes the development of symptoms. Young's primary argument was that many researchers overlooked the etiology issue of PTSD and focused on the PTSD as a cause of symptoms, or that PTSD was the reason that certain symptoms existed. Additionally, Young stated that most often the individual "sufferer" defined PTSD because of certain beliefs or convictions the individual had regarding their symptoms. Young's argument then became that of distinguishing between PTSD defined by "valid and

reliable" instruments and PTSD defined by peculiar biological factors.

Ultimately, Young argued that the problem faced by researchers of PTSD was the interpretation of the symptoms by clinicians, the cultural, psychological and social demographics of patient populations, and the memories of the patients. Young concluded that PTSD would have existed whether or not it was identified and coined by researchers, but also that PTSD has been defined as such because of the history behind the development of the disorder, "the state of affairs will be straightened out once the right technology or the right model has been developed" (p. 298). Judging by his comments, he appears to believe that the DSM and other methods of psychological disorder classifications are inaccurate and require further research for PTSD to be truly identified.

Summary. PTSD has a developmental history that illustrates the issues researchers must evaluate when considering a new study. The diagnostic criteria appear to be the most significant issue in the PTSD development, most importantly the "initial stressor". From the identification of Gross Stress Reaction in the DSM (APA, 1952), the diagnostic criteria, for what has become PTSD, has created enough suspicion among researchers to consider the etiology of the disorder. Thus, as several revisions have been made from the original DSM, so have revisions been made to the classification of PTSD. In the DSM (APA, 1952), Gross Stress Reaction was classified as a personality disorder recognized in normal individuals suffering from physical and

emotional stress, the DSM-II (APA, 1968) still identified Gross Stress Reaction as a personality disorder, but eliminated the role of the 'reaction' (Kinzie & Goetz, 1996). In the DSM-III (APA, 1980), PTSD was moved from the personality disorders to the anxiety disorders, and a list of 12 symptoms were given as diagnostic criteria. The DSM-III-R (APA, 1987) eliminated several symptoms believed to be associated with trauma, but attacked the etiology issue by including an initial criterion identifying the exposure to a traumatic event outside the range of usual human experience. However, this revised edition of PTSD still missed a concrete description of the etiology of PTSD. Thus, following more research, the DSM-IV (APA, 1994) accurately classified PTSD as an anxiety disorder that has a specific etiology and can be identified by a list of 17 symptoms.

The research has indicated an uncertainty regarding the initial stressor's role in the development of PTSD, whether the initial stressor actually leads to an anxiety disorder that can be identified through basic symptoms, and whether basic PTSD research can be conducted using standardized instruments (Young, 1995). The DSM-IV (APA, 1994) is the most recent diagnostic classification that attempts to consider the developmental issues of PTSD raised by past research.

PTSD and Vietnam Nurses

This section will review the incidence of PTSD in nurses, after spending a tour of duty providing medical services to the Vietnam War.

Stretch, Vail, and Maloney (1985) conducted a study focusing on PTSD among army nurse corps Vietnam Veterans. The study was designed to compare Vietnam veteran nurses to nurses who worked during the Vietnam era but were not stationed in Vietnam, to determine the etiology of PTSD. The study also focused on the role of social support available to the nurses, both during and after the war, to investigate whether social support lessens the potential of suffering from PTSD. The study examined 361 Vietnam-veteran nurses and 351 Vietnam-era nurses. All subjects completed the Vietnam-Era Nurses Adjustment Survey. The researchers based their clinical findings on the DSM-III (APA, 1980). The results showed the existence of PTSD symptomology in 12 of the 361 Vietnam-veteran nurses (3.3%), whereas only 3 of the 351 Vietnam-era nurses (0.85%) reported symptoms associated with PTSD. Based on the survey, Stretch et al. determined that 33 Vietnam-veteran nurses (9.1%) had experienced PTSD while serving in Vietnam. This degree of prevalence was reported to be similar to the prevalence of symptoms in Army Vietnam veterans. Vietnam nurses who indicated high levels of social support reported lower levels of PTSD than those nurses who indicated lower levels of social support.

Paul (1985) conducted a study to determine the role of the Vietnam nurse and to determine whether or not the nurses perceived the war as stressful enough to cause PTSD. Paul utilized reports from volunteers who responded to an advertisement in a nursing periodical to discover the

aftereffects of the war and the symptoms associated with exposure to the war. "Data analysis identified fourteen adverse after-effects which are similar to the symptoms of PTSD" (pp. 574-575). The results also indicated that some of the subjects had been diagnosed with PTSD, but that this diagnosis was not necessarily related to the experience of being a Vietnam nurse.

A report by Paul and O'Neill (1986) indicated that the symptoms of nurses stationed in Vietnam matched the PTSD symptoms of combat veterans. Paul and O'Neill indicated that over one-third of a group of nurses surveyed suffered from adverse effects of the war similar to the symptoms of PTSD.

Norman (1988) studied a group of military nurses who served in Vietnam. The scope of the study was to determine whether or not the levels of PTSD had changed over three time periods, and whether certain conditions played a role in the development and continued suffering from the disorder. Norman also attempted to determine whether a strong social support network could have a positive effect on the nurses who may have suffered from PTSD. Norman conducted an "in-depth structured interview" of 50 nurses, consisting of 60 questions designed by Norman and 15 questions from the Impact of Event Scale (Horowitz et al., 1979). The methods for obtaining information, other than that collected by the Impact of Event Scale, was very subjective and retrospective in nature. The results of the study indicated that 11 of the 50 nurses interviewed had participated or were currently

participating in therapy to deal with the PTSD symptoms associated with their time in Vietnam. At the time of the study, over 25% of the subjects still reported high levels of the disorder with involuntary memories of the war. The concept of social support seemed to have played a major role in the nurses ability to overcome the unwanted memories and stress related to the war. In addition to the findings of this particular article, Norman cited Kulka, who claimed the National Vietnam Veterans Readjustment Study released figures in 1988 that 9% of the female military personnel assigned to Vietnam duty still qualified for diagnosis of PTSD.

In a survey of U.S. Air Force flight nurses, Ravella (1995) investigated the long term results of active duty on the lives of nurses who participated in the war-time medical effort. Ravella did not use a standardized test to collect her data, but a list of questions that had been accumulated following qualitative research. In a review of literature, Ravella illustrated the type of duty in which the nurses participated, specifically their participation in providing medical assistance to troops that had sustained traumatic war wounds, both minor and severe. Ravella cited McVicker, who described triaging patients that had come through a hospital that required immediate care, and dealing with moral conflict over which patients should be treated first and with what measures. Further investigation revealed that the nurses of Vietnam "suffered side effects similar to the combatants...exposure to trauma and death are the best predictors of PTSD as was shown by nurses who

worked in high stress patient care, including intensive care units, emergency rooms and operating rooms" (p.81). Results of Ravella's interviews with the nurses who volunteered for this study supported the belief that PTSD is often determined by the intensity of the traumatic situation, and not so much as dependent on the type of traumatic situation. Sixty percent of the subjects in this study reported single patient care situations as events that had the greatest lasting impact on the nurses, whereas 40% of the nurses reported a threat to their life as the single most traumatic event memorialized. The author of this study noted that the interviews took place during Desert Storm, which could have been a reason why the nurses responded the way they did during the interviews, regarding the intensity and effect their participation as Vietnam War nurses has had on their lives.

Summary. Research of PTSD in Vietnam nurses has indicated that the disorder can be found in individuals responsible for medical treatment (Norman, 1988; Paul, 1985; Paul & O'Neill, 1986; Ravella, 1995; Stretch, Vail, & Maloney, 1985). The prevalence of PTSD in Vietnam nurses is reported to be similar to the prevalence of symptoms in Army Vietnam veterans. The Vietnam nurses participated in medical assistance to troops that had sustained traumatic war wounds, both minor and severe and often indicated moral conflict over which patients should have been treated first and with what measures. Exposure to trauma and death were the best predictors of PTSD as was shown by nurses who worked in high stress patient care, thus

PTSD may be determined by the intensity of the traumatic situation, and not so much by the type of traumatic situation. The Vietnam nurses depended greatly on social support from other nurses, and later from family and friends.

PTSD and Disaster Relief

This section will review the incidence of PTSD in individuals who had participated in the medical service or clean-up of an isolated natural or human-made disaster.

Durham, McCammon, and Allison (1985) examined the psychological impact of a disaster on rescue personnel who responded and assisted in the operation. The study's 79 subjects were police officers, firefighters, emergency medical technicians, and various hospital employees. None of the subjects witnessed the disaster, the explosion of an apartment building, but all subjects worked directly with the operation. The instrument used for data collection was a nine page inquiry of general demographics, role during the disaster, symptoms of post-traumatic stress, emotional support, and coping strategies. Durham et al. based their assessment of PTSD symptomology on the DSM-III (APA, 1980). Eighty-one percent (64 of 79) of the subjects reported at least one symptom identified in PTSD, whereas 11 of 79 (14%) subjects met the diagnostic criteria for PTSD at five months post-disaster. Only 5 of 79 (6.3%) subjects claimed to be completely symptom free at five months post-disaster. The vast majority of the subjects reported they had received excellent social

support from families, coworkers or neighbors, which may have been beneficial in their psychological reactions to the disaster.

McCammon, Durham, Allison, and Williamson (1988) examined the same subject pool as the study by Durham et al. (1985). The difference between the two, was this study compared the cognitive appraisals of the subjects from the apartment explosion, to cognitive appraisals of a group of rescue workers who provided on-site medical assistance and hospital assistance to a community that was devastated by a tornado. A questionnaire designed by Wilkinson, intended to assess the reactions of the workers who responded to the disaster, was utilized to gather data regarding thought processes of the two subject groups. The questionnaire contained inquiries about symptoms that had been experienced by workers since the time of the disaster. A questionnaire dealing with perceived social support was administered to the rescue workers of the explosion and of the tornado. Symptomology of PTSD was evaluated in terms of the DSM-III (APA, 1980). Following the disasters, 14% of the explosion subjects qualified for the PTSD criteria at five months post-disaster, whereas 17% of the subjects who responded to the tornado met the diagnostic criteria for PTSD at three months post-disaster. For the group of tornado rescue workers, the higher ratings of perceived social support predicted fewer PTSD symptomology. McCammon et al. believe future studies should involve actual diagnosis of PTSD, rather than simply identifying PTSD symptoms.

In 1989, one of the biggest earthquakes ever to hit California took place in the Bay Area, leaving thousands of people without shelter, people dead, and the entire area in total disarray, requiring millions of dollars in repairs. Thousands of people assisted in the clean-up of wreckage, both to the physical environment and to the psychological stress that occurred as a result of losing family, property and integrity. In 1991, Armstrong, O'Callahan, and Marmar designed a study that focused on debriefing Red Cross disaster personnel after their involvement in the disaster relief. As stated by Armstrong et al., the purpose of their study was to evaluate the applications of the Critical Incident Stress Debriefing (CISD), designed by Mitchell (1983), using a natural disaster as the ideal situation for a study. The overall attempt to debrief the Red Cross personnel following the disaster was called the Multiple Stressor Debriefing Model, which utilized the CISD as the main source of data collection. Armstrong et al. claimed that the Red Cross personnel were generally not exposed to the traumatic situations that occurred, but their constant contact with the disaster victims placed them at an increased risk of stress reactions, including PTSD. To be classified as a critical incident, it could be "any situation faced by emergency personnel that caused them to experience unusually strong emotional reactions which had the potential to interfere with their ability to function either at the scene or later" (p. 585). The San Francisco Department of Veteran Affairs Post-Traumatic Stress Disorder Clinical Team acted as the debriefers for the Red Cross personnel. The team

attempted to evaluate the responses of the personnel after witnessing such a disaster and to discover the long-term effects that such an event could have on the lifestyle of the Red Cross personnel. It was determined after completion of the Multiple Stressor Debriefing Model, "that experience of the Red Cross personnel returning home from the San Francisco earthquake was analogous to the Vietnam veteran finishing the tour of duty and heading home" (p.590). This statement was made because many of the Red Cross personnel were at a high risk of developing PTSD because of their involvement in the clean-up efforts of Hurricane Hugo just prior to their involvement in the earthquake clean-up. Going from one traumatic situation to the next was very similar to that of a troop participating in the Vietnam War. Overall, Armstrong et al. considered the Multiple Stressor Debriefing Model a successful measure of indicating PTSD as it is defined in the Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Revised (DSM-III-R, APA, 1987), but indicated that further use of such a model should be considered to evaluate the effectiveness of the model.

Ersland, Weisaeth, and Sund (1989) assessed the responses of rescue workers following the collapse of an oil rig. One hundred thirty-four individuals returned a questionnaire that contained 88 questions. The authors assigned the 15-item Impact of Event Scale (Horowitz et al., 1979) as part of the study, 9 months after the disaster. The questionnaire was intended to assess the workers stress reactions, the level of competence of the disaster

workers, coping problems, and the type of stressors the disaster caused. Symptoms were identified using the DSM-III criteria for PTSD. According to the IES, 24% of the respondents reported poor mental health nine months post-disaster. Poor mental health was assumed to refer to PTSD symptoms. Ersland et al. concluded that "the frequency with which stress reactions were experienced demonstrated that rescue stress exposure during the disaster clearly exceeded the stressor criterion for DSM-III's PTSD" (p. 47). However, the authors also admitted that simple response to questionnaire was not reliable enough to make a clinical diagnosis, and evaluation by a trained professional would be beneficial.

Lundin and Bodegard (1993) published a study of the psychological impact of an earthquake on the rescue workers. An earthquake hit the country of Armenia in 1991, and several European countries deployed rescue help to the communities that suffered the greatest damage. This study involved 50 rescue workers from Sweden that consisted of firefighters, a surgeon, a nurse, and other rescue personnel. A questionnaire made up of a list of symptoms, the Impact of Event Scale (Horowitz et al., 1979), and the General Health Questionnaire (Goldberg, 1979) was distributed when the group of subjects returned home, at one month after returning home, and at nine months post-disaster. Lundin and Bordegard also differentiated between the responses of professionals and non-professionals. First, there was a significant difference in the amount of questionnaires returned by

professionals (95%) compared to non-professionals (76%) at the nine month follow-up. Twenty-five percent of the total group reported feeling a lack of training for the work they performed. At nine months post-disaster, there were no significant differences between professionals and non-professionals with regard to the IES and GHQ. The subjects stated that training for that type of work seemed necessary, and that particular qualifications ought to be stressed prior to being subjected to such disaster work.

Dyregrov, Kristofferson, and Gjestad (1996) produced a study that compared the differences between professional and voluntary workers who responded to a bus accident where 12 children and four adults were killed and 18 others were injured. Twenty-four Red Cross volunteers responded to the questionnaire, and 57 professionals that included police, fire rescue personnel and health personnel responded to the questionnaire. The questionnaire included inquiries of demographic information, experience with disaster situations, and the 15 questions from the Impact of Event Scale (Horowitz et al., 1979). The General Health Questionnaire (Goldberg, 1979) was given to estimate the overall psychological states of the workers. The results reported significantly higher scores on the IES for the voluntary workers at one month and 13 months after the bus accident. However, the professional workers had higher values on the GHQ than the voluntary workers, which the authors attributed to the overall stress of being professional emergency service personnel. The results showed that volunteer and professional workers

responded to disasters in a similar manner, although the volunteers seemed to suffer greater. Dyregrov et al. indicated that the professional workers had a strong social support network amongst themselves because of their familiarity with the other professionals, and claimed that for this reason, the professional workers were able to cope better than the volunteers. The volunteers reported very little social support.

Summary. The importance of studying psychological reactions of emergency personnel following disasters is, that emergency personnel may experience unusually strong emotional reactions which have the potential to interfere with their ability to function either at the time, or later in their career. Disaster relief is a difficult task to complete without suffering from some type of psychological distress. Whether or not the disaster was witnessed by relief personnel, constant contact with the disaster victims may place them at an increased risk of stress reactions, including PTSD. Following a single disaster or repetitive disasters, many subjects may suffer from symptoms of PTSD (Armstrong, O'Callahan, & Marmar, 1991; Durham, McCammon, & Allison, 1985; Dyregrov, Kristofferson, & Gjestad, 1996; Ersland, Weisaeth, & Sund, 1989; Lundin & Bodegard, 1993; McCammon, Durham, Allison, & Williamson, 1988).

Disaster relief personnel indicated the importance of social support when involved with disasters, which if received, benefited their psychological health. Thus, higher ratings of perceived social support may predict fewer

PTSD symptoms. With regard to professionals and non-professionals and the impact of disasters, both groups responded to disasters in a similar manner, although professional workers tended to suffer fewer symptoms because of the more consistent social support they received.

PTSD and Firefighters

In the most comprehensive study of post-traumatic stress, Bryant and Harvey (1996) investigated the relative levels of post-traumatic stress in firefighters following involvement with different stressors. The instruments used for data collection were the 12-item General Health Questionnaire (Goldberg, 1979) to determine general psychological distress, and the 15-item Impact of Event Scale, to establish the risk of PTSD. Specifically relating PTSD to witnessing or dealing with trauma or injury of individuals, 32% of the firefighters reported motor vehicle accidents, search and rescue operations, and suicides as the events which had the greatest impact on them during their work. Seventeen percent reported significant post-traumatic stress related to firefighting duties, and 9% reported extreme post-traumatic stress. The authors prediction that firefighters who had experienced multiple traumas would report higher levels of post-traumatic stress was reported, given the severity of trauma or traumas and threat are more important predictors of post-traumatic stress than the type of stressor.

In a similar article, the same authors, Bryant and Harvey (1995), identified the predictors of distress in a group of firefighters. Bryant and

Harvey claimed the volunteer firefighters utilized in the study had repetitive exposure to stressful situations. The hypothesis was that event related and response related factors, as well as repetitive stress would predict PTSD.

Utilizing the same group volunteer firefighters as in Bryant and Harvey (1996), the authors surveyed the firefighters to determine socio-demographic information, personal experience with stressful events, stressful events related to their personal lives, and to index symptoms of psychological distress. Results indicated that the development of PTSD "is associated with severe features of traumatic events, including physical injury, bereavement, participation in atrocities, exposure to death, and witnessing death....specific features of threatening events are likely to precipitate PTSD, and these involve events that represented either physical or symbolic threat to one's safety" (p. 270).

Fullerton, McCarroll, Ursano, and Wright (1992) examined the psychological responses of firefighters to trauma. Fullerton et al. identified one group of subjects (Sioux City firefighters) that witnessed and responded to an airline crash, and a second group of subjects (New York City firefighters) that had been exposed to several search and rescue incidents. All subjects underwent group debriefing sessions with the researchers, and the responses to their particular events were compared. The authors described actual accounts given by the firefighters. Both groups of subjects claimed the ability to identify with the victims of the events, had feelings of helplessness and

guilt, had a fear of the unknown, and experienced physiological reactions. However, the authors indicated the firefighters from both groups had a high degree of social support within their companies, allowing them to cope with the disasters. All of the firefighters suggested support from their coworkers was important, and the New York City firefighters mentioned humor played an important role in their sharing and support of one another.

Summary. Firefighters have the opportunity to witness traumatic events as a part of their daily job. Firefighters indicated fighting fires, motor vehicle accidents, search and rescue operations, reported suicide attempts, and airline crashes cause significant post-traumatic stress (Bryant & Harvey, 1996). In addition to single traumatic events, experiencing multiple traumas promoted higher levels of post-traumatic stress. The development of PTSD was predicted more by the severity of traumatic events, and less by the type of stressor, whether it was physical injury, bereavement, participation in atrocities, exposure to death, or witnessing death (Bryant & Harvey, 1995). Firefighters reported that the high level of social support amongst coworkers and the ability to find humor in situations allowed them to cope with the job (Fullerton, McCarroll, Ursano, & Wright, 1992).

PTSD and Police Officers

Gersons (1989) evaluated the patterns of PTSD in police officers following shooting incidents. The study used 37 police officers who had participated in a shooting incident in which an individual was either injured

or killed. To establish a measure for data collection, Gersons converted the 12 identifiable symptoms for post-traumatic stress disorder from the DSM-III (APA, 1980) into open-ended questions and then submitted the questionnaire to the subjects. According to the diagnostic criteria, three subjects (8%) were completely symptom free, 17 of the 37 (46%) suffered from symptoms of PTSD, and the remaining 17 subjects (46%) fit the diagnostic criteria for PTSD. Gersons identified two subjects in particular, to stress his findings, that failed to utilize social support networks, if they were available, and who also had participated in and witnessed several shooting incidents.

Saathoff and Buckman (1990) accumulated data from a subject pool of 26 police officers who, through either self-referral or referral from a supervisor, had undergone psychiatric evaluation. The subjects were interviewed by officials at the University of Virginia, Department of Behavioral Medicine and Psychiatry. The department utilized the DSM-III-R (APA, 1987) to diagnose the subjects, if a diagnosis was requested. Of the 26 subjects interviewed, three (11.5%) were diagnosed with PTSD, the remaining officers being diagnosed with various other disorders based on the symptoms revealed during their evaluations. The actual causes for the PTSD diagnoses were not identified by the authors.

Alexander and Wells (1991) conducted a study to evaluate the reactions of police officers to handling bodies after a major disaster. The disaster was not an ordinary event for a police officer to attend, an explosion of an oil rig

that left 167 men dead. Alexander and Wells utilized four questionnaires to gather data from over 50 police officers who were involved with the disaster relief. The authors were not looking specifically at PTSD, but utilized a revised edition of the Impact of Event Scale (Horowitz et al., 1979). The IES was used to determine whether or not the memory of the disaster had intruded upon the thoughts of the police officers and how often they attempted to avoid the memory. The authors were able to gain access to a pre-disaster questionnaire designed by Zigmond and Snaith, that was designed to estimate the officers feelings over the previous seven days before the disaster. When or how this scale was administered prior to the disaster was unclear. Correlations and relationships were made to show no significant differences between the pre-disaster mental states and the mental states of the officers following the disaster. The results indicated that the officers dealt with the handling of bodies relatively well and the authors apparently did not find symptoms of PTSD at a clinically significant level.

Kuch et al. (1995) reported results of a study that examined 11 police officers that had been diagnosed with PTSD. The methods of the study were not revealed, however, the results of the study indicated that the possible causes of the PTSD in the police officers were situations such as being exposed to life threatening gunfire, shooting and killing assailants, being attacked by a vicious animal, and witnessing fellow officers being killed or severely injured while in action.

Summary. Police officers have the task of upholding the law. With this job comes the unfortunate opportunity to participate in gunfire, handling dead bodies, and responding to various other traumatic events (Alexander & Wells, 1991). Thus, police officers are at risk of psychological distress severe enough to be clinically diagnosed (Gersons, 1989). The police officer's daily exposure to traumatic events in which individuals are either injured or killed may cause policemen to suffer from symptoms of PTSD, and even fit the diagnostic criteria for PTSD (Kuch et al., 1995).

PTSD and Other Personnel

This section will review the incidence of PTSD in individuals who were responsible for the safety and comfort of large groups of people, other medical volunteers, and victims of occupational hazards.

Genest, Levine, Ramsden, and Swanson (1990) surveyed 14 volunteer emergency personnel, in conjunction with ambulance services, who had participated in failed cardiopulmonary resuscitation (CPR) attempts. The authors utilized Tait and Silver's reaction questionnaire concerning reactions to a traumatic event, Lazarus and Folkman's Revised Ways of Coping Checklist, and a third measure to determine the volunteers' responses to participation in a failed attempt of CPR. The authors did not specifically identify post-traumatic stress disorder in the scope of the study, but the results of the study indicated volunteers suffering from symptoms similar to those of PTSD in that:

an unsuccessful attempt at CPR seemed to lead to a persistent psychological aftermath. Some individuals experienced vivid, involuntary and uncontrollable thoughts, feelings, and/or mental images concerning their attempt. Ten of the 14 reported that they thought about the unsuccessful attempt 'sometimes' or 'frequently.' Most recalled the experience unintentionally (p. 308).

These accounts were identified as being relatively similar to the diagnostic criteria of PTSD in the DSM-IV (APA, 1994).

Marks, Yule, and DeSilva (1995) examined PTSD in a small population of airline cabin crew attendants who had been survivors of an airplane crash. Aside from the expected symptoms of PTSD that would be expected as a participant in an airline crash, Marks et al. sought to discover whether any of the PTSD could be related to the attendant's perceived inability to keep the accident from happening or their inability to offer assistance to the passengers. The authors used five instruments to collect data from the attendants at eight months and 18 months following the airline incident. Two of those measures were the 15-item Impact of Event Scale and the 28-item General Health Questionnaire. The purposes for utilizing these instruments were to assess the effect of the traumatic event and to estimate the risk of psychiatric disorder, respectively. The results of the General Health Questionnaire and the Impact of Event Scale showed that five of the six attendants (83%) had clinically significant symptoms of post-traumatic stress disorder during the initial (eight months) examination and the follow-up (18 months). The remaining attendant had a clinically significant score on

both of the questionnaires during the initial examination, but showed scores below the clinically significant level in the follow-up examination. Marks et al. made two statements in their discussion that pertain to the attendants' inabilities, and possible causes for PTSD. The first statement is:

in the original assessment, they all clearly stated how responsible they felt, and also how guilty they felt about their failure to prevent the disaster....Part of the guilt came from their failure, due to their own injuries, to help the passengers after the crash (p. 267).

The second statement agreed with a comment made by Butcher and Dunn:

pre-accident training and crisis management may help new members in handling their own responses and those of others who are traumatized by the disaster. This type of training should include the flight crew because they must deal with pre-crash emergency management of passengers (p.267).

Tranah and Farmer (1994) focused their study on psychological reactions of drivers to railway suicide. Although railway drivers are not typically classified as emergency personnel, they, like airline cabin crew attendants, have some responsibility towards their passengers. If a passenger was injured or traumatized during a ride, the railway driver should be able to deal with the situation. As far as witnessing a suicide, 17% of the drivers interviewed (13 of 76) had been diagnosed with PTSD. Of the remaining drivers interviewed, 12 (16% of all drivers) were diagnosed with a different psychiatric disorder, and 51 of 76 drivers (67%) had no diagnosis.

In a similar study looking at stress responses to railway accidents, Farmer, Tranah, O'Donnell, and Catalan (1992) studied the psychological

effects of drivers after witnessing a single railway suicide or even multiple suicides over a time period. The main focus was to assess the incidence of PTSD in London Underground subway drivers. Farmer et al. utilized four methods for collecting data, the most important being a DSM-III-R (APA, 1987) diagnostic criteria symptom checklist. In addition to the symptom checklist, the drivers completed the 28-item General Health Questionnaire (Goldberg, 1979) and the 15-item Impact of Event Scale (Horowitz et al., 1979). At one month following the witnessing of a suicide, 7 of 43 subjects (16.3%) satisfied the DSM-III-R (APA, 1987) diagnostic criteria of PTSD based on the symptom checklist. Six of the seven PTSD cases (13.9% of total subjects, 85% of PTSD cases) also showed risk of mental disorder based on the GHQ, and five of the seven (11.6% of total subjects, 71% of PTSD cases) scored above the level of clinical significance on the IES. Farmer et al. concluded that not all drivers are affected by witnessing a suicide, but that witnessing a single event or multiple events can promote the development of PTSD.

Schottenfeld and Cullen (1986) attempted to recognize occupation-induced PTSD. Initially, Schottenfeld and Cullen claimed that physicians are quick to identify PTSD in veterans of a war, but often overlook the connections between occupational exposures and injury to PTSD. So, the authors identified 21 subjects who had suffered from a group of symptoms and had missed at least three months of work because of those symptoms. These authors developed a new set of criteria for a disorder they called

"atypical PTSD" and evaluated the subjects utilizing their new criteria and comparing it to the criteria for "typical PTSD". Using the established criteria, Schottenfeld and Cullen recognized 3 of the 21 subjects (14%) as having the "typical PTSD", 7 of 21 subjects (33%) as having the new "atypical PTSD", while the remaining subjects suffered from "other somatoform disorders" (p. 366). The authors at no time during their study concluded which occupations were at greater risk of inducing PTSD, only that the group of subjects consisted of factory workers.

In a study that identified a surprising population, Klamen, Grossman, and Kopacz (1995) studied PTSD symptoms in resident physicians, related to experiences during their internships. Although the study published in 1995, the authors chose to use the diagnostic criteria outlined in the DSM-III-R (APA, 1987) rather than that of the DSM-IV (APA, 1994). The research question posed by the authors was whether the residents were exposed to trauma severe enough to promote PTSD. The study utilized a questionnaire to survey the 212 subjects' PTSD symptomology, types of stressors experienced and social supports utilized during the internship. Twenty-eight of the 212 subjects (13%) met the diagnostic criteria for PTSD related to their time as an intern. The results indicated that women were significantly more likely to meet the diagnostic criteria than men. Of all the medical specialties identified by the subjects, the only specialties that did not meet diagnostic criteria were emergency medicine and orthopedic surgery. The only statement made

regarding this finding was that the emergency medicine and orthopedic surgery had less demanding schedules, they conformed to nontraditional shifts. The study also indicated a negative correlation between social support and PTSD symptoms, suggesting that high levels of social support acted as a buffer to the stressful environment of residency internships. Klamen et al. concluded by stating that the use of the DSM-IV diagnostic criteria may alter the results, due to the different criteria for what constitutes a traumatic event.

Summary. Personnel responsible for large groups of people, either during large events or several individual events, are certainly susceptible to traumatic situations. Participants of unsuccessful CPR attempts, airline cabin crews, resident physicians, and event train operators may experience psychological distress, including uncontrollable intrusions of the memory into their minds, that may indicate clinically significant symptoms of post-traumatic stress disorder (Farmer, Tranah, O'Donnell, & Catalan, 1992; Genest, Levine, Ramsden, & Swanson, 1990; Grossman, & Kopacz, 1995; Klamen, Marks, Yule, & DeSilva, 1995; Tranah & Farmer, 1994).

There are no indications which occupations are at greater risk of promoting PTSD (Schottenfeld & Cullen, 1986). However, those occupations with less demanding schedules, nontraditional working hours, and higher levels of social support may be less likely to promote PTSD.

Summary and Proposal

As can be interpreted by the literature, PTSD has an interesting history. The authors that have outlined PTSD from the beginning have argued that the disorder is far more complicated than what the researchers have made it out to be. However, PTSD has reached the current level because of research studies that have been produced, not by authors that have criticized the findings and conclusions of those studies. The development of the DSM-IV (APA, 1994) stems from questionable results and conclusions of studies that had previously been centered around the DSM-III and DSM-III-R interpretations of PTSD. To follow the advice of Young (1995), in order to solidify the true diagnostic criteria for PTSD, research studies should continue to examine PTSD according to the most recent diagnostic criteria for PTSD, which at this time is found in the DSM-IV (APA, 1994).

The proposed study can utilize the methods and procedures of past studies in an attempt to recognize the incidence of PTSD among a previously unresearched population, athletic trainers. The study would benefit PTSD research most by following previous leads to the identification of the disorder. The particular leads include researching a population that may be subject to single or repetitive exposures to traumatic events outside the realm of usual human experience, identifying symptoms that may arise as a direct result of witnessing or participating in such events, finding correlations and

relationships among particular subgroups and PTSD, and then making recommendations and suggestions for further research based on the results and conclusions of the study. Therefore, the purpose of this study will be to identify the incidence of PTSD symptoms in the population of certified athletic trainers, based on the diagnostic criteria for PTSD outlined in the DSM-IV (APA, 1994).

Chapter 3

Methods

The purpose of this study was to identify the incidence of PTSD symptoms in the population of certified athletic trainers, based on the diagnostic criteria for PTSD outlined in the DSM-IV (APA, 1994). Subjects, instruments, procedures and data analysis are outlined below.

Subjects

This study surveyed athletic trainers, certified by the National Athletic Trainers' Association, Board of Certification, who were randomly selected from the membership directory of the National Athletic Trainers' Association. Athletic trainers working in the traditional athletic training setting at the collegiate/ university level were utilized because of their daily exposure to injury situations in the practice or competition arena. The age, gender, and racial demographics of the subject pool was decided solely by the random selection of the subjects. To maintain objectivity, subjects who are friends or acquaintances of the researcher were not allowed to participate in the study.

Instruments

The investigative survey was comprised of two sections, each containing particular instruments designed to collect specific information. The two sections were: (1) a questionnaire to collect demographic information, perceived level of social support, and approximate number of

traumatic events experienced within the last 3 years, (2) one standardized questionnaire and a 17-item symptom checklist.

Demographics. Section I contained a questionnaire to collect the subject's age, gender, and years of experience as a certified athletic trainer, the subject's perceived level of social support (including family, friends, and coworkers; and a positive, neutral or negative rating), and the approximate number of times the subject had experienced a traumatic event within the last 3 years, while on duty as an athletic trainer (Appendix B).

Impact of Event Scale. Section II contains the Impact of Event Scale (Horowitz et al., 1979) and an open-ended questionnaire derived from the diagnostic criteria for PTSD found in the DSM-IV (APA, 1994).

The standardized questionnaire, the IES (Appendix C), is a two-part self-report test that does not require supervision by the clinician. The IES was deemed a valid and reliable instrument supported by test-retest validity, reliability, and sensitivity results (Horowitz et al., 1979). The first part of the questionnaire asked the subject to briefly describe a particular traumatic situation from their past work experience as an athletic trainer, and give the approximate month and year the situation occurred. The second part of this questionnaire contained 15-items that relate directly to the situation described in Part I of the questionnaire. These items were randomly ordered, but each item falls into one of two subscales, I = intrusion or A = avoidance. The IES has four columns from left to right that have a point value in ascending

order in a Likert scale manner. The minimum possible score on the Impact of Event Scale is zero, while the maximum possible score is 75 points, with a clinically significant score of 35 points or higher. The test was designed to assess the effect of the traumatic situation on the subject's current life.

Horowitz et al. indicated that this particular questionnaire accurately assesses risk of post-traumatic stress disorder.

Stress Checklist. The stress checklist, an open-ended questionnaire regarding the 17 symptoms identified for PTSD (Appendix D), will be scored according to the diagnostic criteria for PTSD found in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (APA, 1994) (Appendix A).

Procedure

Following permission and approval from the Human Subjects - Institutional Review Board of San Jose State University, a list of certified athletic trainers who work in the college/university setting was obtained from the headquarters of the National Athletic Trainers' Association, in Dallas, Texas. This list was provided by the NATA and can be purchased by members.

Each athletic trainer's name was provided on a mailing label. The labels were separated and placed into a bucket for random selection. The member's name pulled during random selection was added to the potential subject list. A letter was mailed to the randomly selected subjects ($n = 596$)

asking for volunteers for the study. The selected subjects were asked to return a self-addressed stamped postcard indicating whether or not they would like to volunteer to participate in the study. Upon receipt of the postcard, the subject was mailed a package of survey materials that contained a brief explanation (Appendix E) of the scope and intent of the study, an opportunity to give informed consent (Appendix F), a questionnaire asking for demographic information, the Impact of Event Scale, and a Stress Checklist. A self-addressed stamped envelope was included for the benefit of the subjects to return the materials as quickly as possible. The subjects were asked to return the survey within 4 weeks of receiving the survey materials.

Of the 596 invitations sent in search of volunteers, 323 (54%) postcards were returned. Of the 323 responses, 223 (69%) members indicated a willingness to participate in the study, whereas 100 (31%) members chose not to participate. Of the 223 members who were sent the survey materials, 158 (71%) members returned the surveys. Of the initial 596 potential subject, 158 (27%) became actual subjects.

Data Analysis

The purpose of the study was to identify the incidence of PTSD symptoms in athletic trainers. This study models the statistical analysis of Bryant and Harvey (1995). Thus, most data analysis used for this study is descriptive in nature, indicating type, range and mean of responses. Using the SPSS Statistical Package 6.1 (SPSS, Inc., Chicago, IL) a stepwise multiple

regression test was performed. A stepwise multiple regression test indicates whether independent variables predict a dependent variable. The alpha level was set at ($p < .05$). Preliminary groups were established by age (21-30, 31-40, 41-50, and 51+ years) and for years of experience (1-5, 6-10, 11-15, 16-20, and 21+ years). Finally, the Impact of Event Scale and Stress Checklist indicated any clinically significant PTSD symptoms.

Chapter 4

Results, Summary, and Conclusions

The purpose of this study was to identify the incidence of PTSD type symptoms in the population of certified athletic trainers, based on the diagnostic criteria for PTSD outlined in the DSM-IV (APA, 1994).

This study modeled the statistical analysis of Bryant and Harvey (1995). Thus, most data analysis used for this study is descriptive in nature, indicating type, range and mean of responses. In addition to the descriptive statistics, a stepwise multiple regression was performed to measure whether there were any predictor variables associated with PTSD, such as age, gender, years of experience, level of social support, and number of traumatic events witnessed. Preliminary groups established for age and for years of experience were solidified following collection of the data.

Results

This study examined 158 subjects from colleges and universities throughout the United States. All subjects were certified by the National Athletic Trainers' Association. Of the 158 subjects, 79 (50%) were female and 79 (50%) were male.

The ages of the total subject pool ranged from 22 to 69 years ($\underline{M}$ = 33.7 years, SD = 7.97, Mode = 28 years). The ages for females ranged from 22 to 47 years ($\underline{M}$ = 31.6 years, SD = 5.6, Mode = 25 & 28 years), while the age for males

ranged from 25 to 69 years ($\underline{M} = 35.8$ years, $SD = 9.4$, Mode = 28 years). Table 1 shows the total number of subjects found in the designated age groups.

Table 1
Number of Subjects Per Age Group

	21-30 yrs		31-40 yrs		41- 50 yrs		51 + yrs	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Males	31	(20.0)	25	(16.0)	18	(11.0)	5	(3.0)
Females	38	(24.0)	34	(19.0)	7	(5.0)	0	(0.0)
Total	69	(44.0)	59	(37.0)	25	(16.0)	5	(3.0)

The range for years of experience as a certified athletic trainer from the total subject pool was 1 to 40 years ($\underline{M} = 9.7$ years, Mode = 3, 8, & 10 years). The range for years of experience among females was 1 to 22 years ($\underline{M} = 8.1$ years, Mode = 3 years), while for males the range for years of experience was 1 to 40 years ($\underline{M} = 11.2$ years, Mode = 3 years). Table 2 illustrates a distribution of the subject population by years of experience, when genders are compared. Tables 1 and 2 indicate that there may be an increased influx of younger and less experienced athletic trainers working in the traditional setting.

Table 2
Number of Subjects Per Years of Experience Group

	1-5 Yrs.		6-10 Yrs.		11-15 Yrs.		16+ Yrs.	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Males	24	(15.0)	22	(14.0)	14	(9.0)	16	(10.0)
Females	27	(18.0)	33	(21.0)	12	(8.0)	7	(5.0)

The subjects were asked to indicate their perceived level of social support received from three different groups: family, friends, and coworkers. The lowest perceived social support reported was "moderately negative" from coworkers, while the highest perceived social support reported was "highly positive" from all three groups. Each response given in perceived social support was coded with a numeric value from one point, equaling the worst possible social support, to nine points, equaling the best possible social support. For perceived social support from family, the subjects reported a mean value of 8.2 points ($SD = 1.6$), for friend social support, a mean of 7.8 points ($SD = 1.6$), and for coworker social support a mean of 7.3 points ($SD = 2.0$). Gender differences for perceived social support from the three groups can be found in Table 3. The differences of perceived social support among males and females, based on the mean of reported scores, may be an indicator of gender bias with regard to social support within the athletic training population, although there is no research to support a lack of social support offered to athletic trainers from fellow athletic trainers.

Table 3
Gender Differences of Perceived Social Support by Group

	Family		Friends		Coworkers	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Males	8.04	1.78	7.52	1.68	7.39	1.98
Females	8.29	1.35	8.12	1.38	7.27	2.10

The range for the amount of traumatic events witnessed during the last 3 years for the total subject pool was 0 to 300 ($\underline{M}$ = 5.7, SD = 10.5). Without the extreme score of 300, the range was 0 to 40 events ($\underline{M}$ = 4.4, Mode = 0, 2, & 3). The range for number of traumatic events witnessed among females was 0 to 40 events ($\underline{M}$ = 4.5 events, SD = 6.8, Mode = 0 events), while the range for males was 0 to 300 events ($\underline{M}$ = 6.8 events, SD = 13.14, Mode = 3 events). The obvious difference between males and females can be attributed to one male subject reporting such an extreme number of traumatic events (300) witnessed in a span of 3 years. Otherwise the most traumatic events witnessed was by a female, reporting 40 events in 3 years.

The subject pool was asked to indicate whether or not the traumatic events caused unwanted distress in their lives. The number of subjects indicating unwanted distress was 59 (37% of total subjects), while the remaining 99 (63%) indicated that the traumatic injuries that they witnessed, if any, did not create unwanted distress in their lives. Forty-three percent (34 of 79) of the females reported that the traumatic events they had witnessed, if

any, had created unwanted distress, while 32% (25 of 79) of the males reported unwanted distress as a result from any traumatic events they had witnessed.

However, 135 of the total subject pool (85%) reported that athletic training was a high-stress occupation. Eighty-five percent of the females (67 of 79) and 86% of the males (68 of 79) reported athletic training to be a high-stress occupation.

Stepwise Multiple Regression. The stepwise multiple regression test was applied using age, gender, years of experience, family social support, friend social support, coworker social support and number of traumatic events witnessed as independent variables. The dependent variable was the subject score on the Impact of Event Scale, which is a measure of the potential risk of diagnosable PTSD. The multicollinearity assumption was violated by the age and years of experience independent variables, so years of experience was eliminated from the regression test. As age increased, the number of years of experience would be assumed to increase, thus weakening the value of the test. Upon elimination of that independent variable, all assumptions were met, and the regression test was performed utilizing an alpha level of .05. The results of the stepwise multiple regression are contained in Table 4. The only independent variable that is a predictor of the dependent variable is coworker social support. A minimal tolerance level of 1.00 must be reached for an independent variable to be stepped in, thus the remaining five independent variables were left out of the regression. Although coworker

social support as perceived by the individual subject is a statistically significant predictor of a score on the IES, the R value of .21, is well below the desired value of statistical strength ($R \geq .70$).

Table 4
Summary Table of Stepwise Multiple Regression Analysis of IES Score and Possible Predictors

Variable	B	SE B	β	T	Sig T
Coworker Social Support	-1.456878	.598733	-.219471	-2.433	.0165*
(Constant)	23.919741	4.644257		5.150	.0000
Multiple $R = .21947$, R Square = .04817, * $p < .05$					

Impact of Event Scale. The Impact of Event Scale (IES) has been determined to be a valid and reliable indicator for risk of diagnosable PTSD (Horowitz, 1979). The IES was given to all 158 subjects in the study. Of the 158 IES questionnaires returned, 29 (13 females and 16 males, 18.35% of total) did not receive a score because the questionnaire was completed improperly, or not completed at all. Of the remaining 129 subjects who completed the questionnaire properly, the range of calculable scores on the IES was 1 to 64 points ($M = 12.95$ points, $SD = 12.8$). The female subject pool IES scores ranged from 1 to 64 points ($M = 13.97$ points, $SD = 13.3$), while the male IES scores ranged from 1 to 46 points ($M = 11.9$ points, $SD = 12.2$). Of the 129 subjects who successfully completed the questionnaire, 10 (7.8%) received a clinically

significant score (35 points or more) that would suggest the individual is at risk of being diagnosed with PTSD. Of the females, six (4.6%) are at risk, while four males (3.1%) are at risk of diagnosable PTSD. However, the remaining 119 subjects (92.2%) do not qualify for risk of PTSD, either by a score of zero or a calculable score less than 35 points. This supports the primary null hypothesis that the majority of certified athletic trainers do not experience post-traumatic stress disorder symptoms at a clinically significant level. Table 5 illustrates the number of subjects who experienced PTSD symptoms indicated by a score on the IES. Subjects in the 1-5 years and 6-10 years of experience groups experienced more symptoms than the 11-15 and 16+ groups, but the differences may be a result of the number of total subjects in the each group. Similarly, 17 more subjects from the 21-30 years age group compared to the 31-40 years age group experienced symptoms, this number is consistent with the difference in the total number of subjects per group.

However, with regard to gender, in (A), 45 males and 55 females experienced PTSD symptoms related to an injury situation, and in (B), 46 males and 55 females. Given the total number of subjects experiencing symptoms, that is an approximate 10% difference.

Table 5
Number of Subjects Experiencing PTSD Symptoms (Intrusion and Avoidance of Memory)

	1-5 Yrs.		6-10 Yrs.		11-15 Yrs.		16+ Yrs.	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
A.								
Males	15	(9.4)	12	(7.6)	5	(3.0)	13	(8.0)
Females	20	(12.0)	23	(14.0)	8	(5.0)	4	(3.0)
	21-30 yrs		31-40 yrs		41- 50 yrs		51 + yrs	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
B.								
Males	20	(12.7)	11	(7.0)	14	(8.9)	1	(.6)
Females	29	(18.3)	21	(13.0)	5	(3.1)	0	(0.0)

Note. A. refers to Years of Experience; B. refers to Age; n = number of subjects; % = percentage of total subject population.

Stress Checklist. The Stress Checklist was an open-ended questionnaire designed to fit the diagnostic criteria for PTSD as it is found in the DSM-IV (APA, 1994). There were five sections to the questionnaire, all related to a cumulative diagnosis. In order for a diagnosis to be made, a subject was required to mark "Yes" in Section A, identify two or more symptoms in Section B, three or more symptoms in Section C, two or more symptoms in Section D, and mark "Yes" in Section E. An extra section (Section F) was the final question on the questionnaire, but has no relevance to the diagnosis of PTSD. It is a merely a tool for clinicians to use when interviewing a subject. If a person is to be diagnosed with PTSD, the person must mark "Yes" in Section A, regardless if all other section's requirements are satisfied.

Completion of the questionnaire by the study's subjects revealed a variety of information. Of the 153 subjects (97%) who completed the

questionnaire , 48 (31%) subjects marked "Yes" in Section A. Eleven of the 48 (23%) subjects marked "Yes" in Section E, meaning that any symptoms they had experienced, continued for more than 1 month. Two of the 11 (18%) subjects who marked "Yes" to Sections A & E, met the requirements for Sections B, C, & D, meaning that, based on the methods utilized in this questionnaire, 2 of 153 subjects (1.3%) are diagnosable for PTSD. This supports both primary and secondary hypotheses. The remaining nine subjects (5.7%) who marked "Yes" in Sections A & E may still be diagnosable if a clinician were to interview them in person.

Twelve subjects (7.8%) marked "No" for Section A and "Yes" for Section E. Of those 12 subjects, one subject (8.3%) met the requirements for Sections B, C, & D. This subject did not qualify as diagnosable by standards of the questionnaire, but an interview with a clinician might reveal otherwise.

Upon cross checking the scores of the IES with the diagnostic possibilities of the Stress Checklist, one of the two subjects indicated as diagnosable by the Stress Checklist was not at risk of being diagnosed, according to the subject's score on the IES. However, the other subject was at risk according to the IES, with a score of 41 out of a possible 75 points. Ten subjects were at risk of being diagnosed with PTSD based on their scores on the IES, but the outcome of the Stress Checklist only indicated one diagnosable case.

Summary

The statistical analysis of the data would indicate that the incidence of PTSD symptoms in certified athletic trainers does not reach clinical significance. The stepwise multiple regression test indicated only that the level of social support that athletic trainers receive from their coworkers predicts a risk of PTSD. More specifically, results from a prior study (Bryant & Harvey, 1995) show that individuals who receive social support from relatives, friends, or coworkers are less likely to experience PTSD symptoms, thus, the subjects in this investigation may experience more or less symptoms based on their perception of coworker social support. The IES scores from the entire subject pool indicate that only 10 of 158 (6.3%) certified athletic trainers are at risk of PTSD at a clinically significant level. The Stress Checklist, which was developed from the diagnostic criteria for PTSD, indicates that only 2 of 158 (1.3%) subjects meet the diagnostic criteria. However, the incidence of post-traumatic stress disorder symptoms among certified athletic trainers becomes apparent upon reviewing the raw data of the study.

Despite the relatively few subjects who are suspected to be diagnosable with PTSD by the Stress Checklist, 67 of the study's 158 subjects (42%) indicated experiencing at least one PTSD symptom as a result of witnessing or managing an athletic related injury while working as a certified athletic trainer. First, the most common symptoms the subjects (45 of 158) experienced were those that refer to reexperiencing the event in any way.

What this may indicate, is that an athletic trainer who is experiencing PTSD symptoms as a result of witnessing or managing an injury situation is likely to recall that injury situation when and if that individual witnesses or manages another injury. It should be considered whether these PTSD symptoms can affect an athletic trainer's performance in future injury situations.

The second most common symptoms the subjects (39 of 158) experienced were those that refer to symptoms of increased arousal. These symptoms include disrupted sleeping patterns, irritability or anger, difficulty concentrating, hypervigilance, and an increased startle response. Because of the long hours involved with athletic training and the constant contact with individuals who require patience and attention, suffering from those symptoms may have a detrimental effect on an athletic trainers ability to fulfill their job requirements.

Thirdly, the least common symptoms subjects experienced (31 of 158) refer to an attempt to avoid the memory of the event. These symptoms show a detachment from social and family activities that may mimic an injury situation, diminished interest or lack of participation in activities that resemble an injury situation, or the inability to recall important aspects of an injury situation. All of these symptoms, if experienced by a certified athletic trainer, may have a direct impact on his/her ability to respond to an athletic injury situation effectively.

A final point to be made regarding the raw data collected by the study concerns the Impact of Event Scale. One hundred one subjects (64%) who participated in this study indicated, by means of the IES, that they had experienced PTSD symptoms within a few weeks prior to completing the survey. If the subjects read the directions carefully, answered the questions as they were designed to be answered, and answered the questionnaire honestly, that statistic is very important. The indication, that the majority of certified athletic trainers surveyed had experienced symptoms indicative of PTSD within weeks of the study, clearly shows that athletic trainers can be psychologically affected by the type and amount of injuries that are seen within the profession. This indication may refute the theory that athletic trainers, as well as other emergency personnel (Bryant & Harvey, 1995), do not suffer any ill effects resulting from situations encountered in their professions, and that being subject to "traumatic events" on a daily basis diminishes the effect of the "traumatic events", therefore being free of mental, emotional or psychological distress.

The definition of PTSD given by the APA (1994) does not identify a specific type of event as "traumatic". It merely gives parameters for an event. Thus, each individual defines "traumatic" based on whether or not they experience symptoms outlined by the APA (1994). A definition for a specific "traumatic event" was not given on any of the survey questionnaires, but the subjects were asked to indicate events that they perceived as "traumatic". The

subjects utilized in this study listed a wide variety of "traumatic events" that they had either witnessed or managed within the last 3 years as a certified athletic trainer. The types of "traumatic events" (Appendix G) indicated by the subjects clearly shows that each individual may have their own idea of a "traumatic event". If a definition for a specific "traumatic event" was given, the impact of the study might potentially be diminished.

Conclusions

Based on the data analysis of this investigation, the following conclusions can be made:

1. Certified athletic trainers who witness or manage an athletic injury or injuries are susceptible to post-traumatic stress as a result of their participation.
2. There is no clinical difference between age levels and experience levels with regard to post-traumatic stress as a result of witnessing or managing an athletic injury or injuries.
3. Females may potentially experience more post-traumatic stress symptoms than males.
4. Social support may play a key role in the inhibition of post-traumatic stress symptoms in certified athletic trainers.

Recommendations

The following recommendations would be made for further investigation of PTSD in certified athletic trainers:

1. Continue to validate the questionnaires utilized in this investigation within the athletic training population.
2. Provide the APA (1994) statement of a 'traumatic event' on the Demographic questionnaire.
3. Include personal interviews within the procedures of the investigation.
4. Investigate social support in the traditional athletic training setting.
5. Investigate the incidence of PTSD within other athletic training settings.
6. Investigate the incidence of PTSD with specific regard to witnessing or managing an injury that requires spine boarding and/or CPR.
7. Develop intra-curricular and extra-curricular activities that inform individual athletic trainers of the risk of witnessing injury.
8. Provide counseling and education for individual athletic trainers who may suffer from psychological stress as a result of witnessing injury.

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Appendix A

Diagnostic Criteria for 309.81 Post Traumatic Stress Disorder

- A. The person has been exposed to a traumatic event in which both of the following were present:
 - (1) the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others
 - (2) the person's response involved intense fear, helplessness, or horror
- B. The traumatic event is persistently re experienced in one (or more) of the following ways:
 - (1) recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions
 - (2) recurrent distressing dreams of the event
 - (3) acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur upon awakening or when intoxicated)
 - (4) intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event
 - (5) physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event
- C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by three (or more) of the following:
 - (1) efforts to avoid thoughts or feelings associated with the trauma
 - (2) efforts to avoid activities, places, or people that arouse recollections of the trauma
 - (3) inability to recall an important aspect of the trauma
 - (4) markedly diminished interest or participation in significant activities
 - (5) feeling of detachment or estrangement from others
 - (6) restricted range of affect (e.g., unable to have loving feelings)
 - (7) sense of foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span)
- D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by two (or more) of the following:
 - (1) difficulty falling or staying asleep
 - (2) irritability or outbursts of anger
 - (3) difficulty concentrating
 - (4) hypervigilance
 - (5) exaggerated startle response
- E. Duration of the disturbance (symptoms in B, C, and D) is more than 1 month.
- F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Specify if:

Acute: if duration of symptoms is less than 3 months

Chronic: if duration of symptoms is 3 months or more

Specify if:

With Delayed Onset: if onset of symptoms is at least 6 months after the stressor

(Adapted from the Diagnostic and Statistical Manual of Mental Disorders, APA 1994)

Appendix B

Demographic Questionnaire

1. Please indicate your age: _____
2. Please indicate your gender: Male Female
3. Please indicate the number of years of experience as a Certified Athletic Trainer:

4. Please indicate the level of social support you receive from the following groups, and rate the social support as either positive or negative:

	<u>Circle one:</u>			<u>Circle one:</u>		
a. Family	<i>High</i>	<i>Moderate</i>	<i>Low</i>	<i>Positive</i>	<i>Neutral</i>	<i>Negative</i>
b. Friends	<i>High</i>	<i>Moderate</i>	<i>Low</i>	<i>Positive</i>	<i>Neutral</i>	<i>Negative</i>
c. Coworkers	<i>High</i>	<i>Moderate</i>	<i>Low</i>	<i>Positive</i>	<i>Neutral</i>	<i>Negative</i>
5. If any, please indicate the approximate number of traumatic events you have experienced within the last three (3) years, while on duty as an athletic trainer:

6. If any, please list a few of the different types of traumatic events that you have experienced as an athletic trainer, utilizing the space provided:
7. Would you say that these traumatic events have created unwanted distress in your life?
 Yes _____ No _____
8. Would you say that Athletic Training is a high-stress occupation?
 Yes _____ No _____

Appendix C

Impact of Event Scale

Is there ONE particular traumatic situation, that you have dealt with in your practice as a **Certified Athletic Trainer**, that sticks out in your mind above all other injury situations. If so, please indicate the date you experienced that situation (approximate month & year) and briefly describe the situation.

Please read carefully:

Below is a list of comments made by people after stressful life events. Please read each item, and with regard to the situation you described above, indicate how frequently these comments were true for you within the past few weeks, by circling the appropriate response. If they have not occurred during that time, please circle the "not at all" response.

I thought about it when I didn't mean to.	Not at all	Rarely	Sometimes	Often
I avoided letting myself get upset when I thought about it or was reminded of it.	Not at all	Rarely	Sometimes	Often
I tried to remove it from my memory.	Not at all	Rarely	Sometimes	Often
I had trouble falling asleep or staying asleep, because of pictures or thoughts about it that came into my mind.	Not at all	Rarely	Sometimes	Often
I had waves of strong feelings about it.	Not at all	Rarely	Sometimes	Often
I had dreams about it.	Not at all	Rarely	Sometimes	Often
I stayed away from reminders of it.	Not at all	Rarely	Sometimes	Often
I felt as if it hadn't happened or it wasn't real.	Not at all	Rarely	Sometimes	Often
I tried not to talk about it.	Not at all	Rarely	Sometimes	Often
Pictures about it popped into my mind.	Not at all	Rarely	Sometimes	Often
Other things kept making me think about it.	Not at all	Rarely	Sometimes	Often
I was aware that I still had a lot of feelings about it, but I didn't deal with them.	Not at all	Rarely	Sometimes	Often
I tried not to think about it.	Not at all	Rarely	Sometimes	Often
Any reminder brought back feelings about it.	Not at all	Rarely	Sometimes	Often
My feelings about it were kind of numb.	Not at all	Rarely	Sometimes	Often

(Adapted and revised from Horowitz et al. 1979)

Appendix D

Stress Checklist

- A. Have you been exposed to a traumatic event in which both of the following were present?
- (1) you experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others
- (2) your response involved intense fear, helplessness, or horror
- Yes _____ No _____
- B. With regard to the traumatic event, have you reexperienced it in any of the following ways? (Mark all that apply)
- ☐ recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions
- ☐ recurrent distressing dreams of the event
- ☐ acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur upon awakening or when intoxicated)
- ☐ intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event
- ☐ physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event
- C. With regard to the traumatic event, have you attempted to avoid the memory in any of the following ways? (Mark all that apply)
- ☐ efforts to avoid thoughts or feelings associated with the trauma
- ☐ efforts to avoid activities, places, or people that arouse recollections of the trauma
- ☐ inability to recall an important aspect of the trauma
- ☐ markedly diminished interest or participation in significant activities
- ☐ feeling of detachment or estrangement from others
- ☐ restricted range of affect (e.g., unable to have loving feelings)
- ☐ sense of foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span)
- D. With regard to the traumatic event, have you experienced any of the following symptoms of increased arousal (not present before the trauma)? (Mark all that apply)
- ☐ difficulty falling or staying asleep
- ☐ irritability or outbursts of anger
- ☐ difficulty concentrating
- ☐ hypervigilance
- ☐ exaggerated startle response
- E. With regard to the traumatic event, has the duration of the disturbances listed above been more than 1 month?
- Yes _____ No _____
- F. With regard to the traumatic event, have you experienced distress or impairment in social, occupational, or other important areas of functioning?
- Yes _____ No _____

(Adapted and revised from the Diagnostic and Statistical Manual of Mental Disorders, APA 1994)

Appendix E

Participation Thank You Letter

June 27, 1997

Dear Certified Athletic Trainer:

Thank you for your response, and your interest in my investigation into the thoughts and feelings of Certified Athletic Trainers after viewing an injury.

I have enclosed an informed consent form, three questionnaires, and a self-addressed stamped envelope for your convenience.

Please be sure to sign both informed consent forms, and keep one (1) for your records. I ask that you would complete the survey materials in private and not discuss the content with any other individuals.

I am asking that you please return the completed materials, including the second informed consent form, postmarked no later than Friday, July 18, 1997. This would help me a great deal in the data collection process.

I would also like to remind you that your participation in the study is completely voluntary and your information will remain anonymous. You may withdraw at any time without prejudice.

Thank you very much for your time and effort.

Sincerely,

Chris Conner

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Appendix F

Letter of Consent Agreement to Participate in Research

Responsible Investigator: Christopher P. Conner, ATC

Title of Protocol: Thoughts and Feelings of Certified Athletic Trainers After Viewing an Injury.

I have been asked to participate in a research study investigating thoughts and feelings of certified athletic trainers after viewing an injury.

I will be asked to openly and honestly complete three questionnaires inquiring about demographic information, my perception of stress related to my profession (Athletic Training), any event(s) that I have experienced during my work as a Certified Athletic Trainer that may have had a stressful impact on my life, and to return the survey materials to the investigator within three weeks.

I understand that the questionnaires will be answered voluntarily and at my own discretion, and are in no way intended to cause discomfort or put me at any reasonable foreseeable risk. I understand that I may decide to discontinue my participation in the study at any time and not be subject to any prejudice. I also understand that I am not expected to receive any benefits or compensation for my participation in this research study.

I understand that the information that I provide will be anonymous. I give the investigator my permission and consent to use my information for the study, understanding that if the study is published, I will in no way be identified by the information that I provide.

If I have any questions regarding the study, I may contact Dr. David Furst, Thesis Advisor, at (408) 924-3039. Complaints about the research may be directed to Dr. James Bryant, Chair, Department of Human Performance, at (408) 924-3012. Questions or complaints about research, subject's rights, or research-related injury may be presented to Serena Stanford, Ph.D., Associate Academic Vice President for Graduate Studies and Research, at (408) 924-2480.

I have received two copies of this consent form, and understand that I am to sign both, to keep one for my records, and to send the second to the investigator along with the survey materials.

I have read the above statements, and by signing and dating my name above the investigator's name and date, I am giving my consent for the researcher to use my information for the benefit of the study.

Subject's Signature

Date

Investigator's Signature

Date

Appendix G

'Traumatic Events' Listed by Subjects

- head/neck Injuries (Spinal Cord, Concussion, Epidural/Subdural Hematoma)
- joint dislocations (Vertebra, Shoulder, Elbow, Knee, Hip, Ankle, Fingers)
- fracture/compound (Femur, Tibia, Facial, Vertebra, Clavicle, Mandible, Humerus, Larynx, Hand & Wrist)
- cardiac arrest/respiratory distress/loss of consciousness (required CPR, Seizure, Pneumothorax)
- knee injury (ACL Ruptures, MCL Sprain, Meniscus)
- amputation or severed body part (Below the Knee, Fingers)
- death of athlete, coach or student (Sudden, Suicide, Shooting, Electrocution, Cardiac Arrest, Cancer, Meningitis)
- laceration (Skin, Kidney, Liver)
- rupture (Patellar Tendon, Spleen)
- anaphylactic shock of coach
- lawsuits related to medical care
- asthma/anxiety Attack, eating disorders, diabetic episode, heat illness, & abortions