

SOURCES OF CHRONIC STRESS AMONG ATHLETIC TRAINING STUDENTS
PRIOR TO TAKING THE BOARD OF CERTIFICATION EXAMINATION

By

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A Thesis Submitted in Partial Fulfillment
of the Requirements for the Degree of
Master of Science in Health and Human Performance

Middle Tennessee State University

2013

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ACKNOWLEDGMENTS

I would like to thank my parents for always supporting every adventure I take. I would like to thank my sister, Nicole, and brother-in-law, Bryan, who have always been my personal cheerleaders and a support system no matter what I have gone through. Without the support of my family I would not have been able to accomplish all the things that I have the past two years. I would like to thank Kevin for always having patience with me and loving me unconditionally. I would also like to thank Dr. Norman Weatherby who helped me stay focused and organized when I needed it most throughout my education at Middle Tennessee State University. Thank you Dr. Rudy Dunlap for helping me with the references I needed to complete a successful study. Finally, I would like to thank Dr. Mark Anshel for taking on a project last minute and helping me to finish my successful adventure at Middle Tennessee State University. Words cannot express my appreciation for you with all the encouragement and patience you have had. I cannot thank you enough for everything you have done to make the entire experience at Middle Tennessee State University a positive one.

ABSTRACT

The purpose of this study was to determine the sources of chronic stress among athletic training students preparing for the National Athletic Trainers Association Board of Certification (NATABOC) examination. Participants included 11 senior athletic training students from a NCAA Division I University located in the southeastern United States. Personal interviews were conducted within ten days of the participant taking the NATABOC examination. Interview questions addressed what type of stressors the ATS endured prior to the examination and what domains caused the most stress and what domains they felt the most prepared for prior to, during, and following the NATABOC examination. Using deductive content analysis, three categories emerged. Time management, meeting expectations, and personal life were the three themes and all participants' responses were categorized into one or more of these themes. Participants also reported that they were frequently stressed prior to the examination and were most stressed about the *Organizational and Professional Health and Well-being* domain prior to, during, and following the NATABOC examination. The results of this study suggest that senior ATS preparing for the NATABOC examination are under significant stress levels due to the demands of school and their ATEP. Future research is needed in this neglected area of study due to the high stress levels of ATSs preparing for the NATABOC examination and the expectations of the student athletic trainers.

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LIST OF ABBREVIATIONS

Certified Athletic Trainer (ATC)

Graduate Assistant Certified Athletic Trainer (GAATC)

Athletic Training Student (ATS)

National Collegiate Athletic Association (NCAA)

Commission of Accreditation on Athletic Training Education (CAATE)

National Athletic Training Association Board of Certification (NATABOC)

Athletic Training Education Program (ATEP)

CHAPTER I: INTRODUCTION

Certified Athletic Trainers (ATCs) are allied health care professionals who specialize in the prevention, treatment, and rehabilitation of injuries sustained to the active population. Often ATCs are the first medically trained person to respond to an injured athlete (Higgins, 2009). ATCs help prevent, evaluate, and rehabilitate injured athletes. They provide a vital medical link between patients and the medical practitioner. They also provide acute care, evaluate and rehabilitate injuries, and provide overall care in a variety of settings, including a physician's office, the industrial work environment, and athletic teams of varying ages and levels of performances. In sport settings, ATCs are required to meet the standards and expectations of the National Athletic Trainers Association, coaches, athletes, parents of athletes, educational institutions, and sport organizations in which they work.

Stilger, Etzel, and Lantz (2001) recommend that ATCs perform various functions in assisting athletic training students (ATs). For example, ATCs can help students to identify sources of and cope effectively with stress. They also recommend that ATCs become better acquainted with athletic training students on a personal level to show students that they care about their health and overall well-being. This is particularly important given the heightened stress level that is common among ATs. ATs are more susceptible than traditional college students to depression, anger, anxiety, sleep

disturbances, and avoidance behavior (Stilger et al). Stilger et al. also recommends giving ATS one or two non-working days each week in order to effectively deal with their stress and to give them time to complete additional school work.

According to a review of related literature by Higgins (2009), results of past research has shown that perceived stress can be influenced by gender, participation in activities, support levels, demands of the person, and other demographics. Higgins placed perceived stress and burnout into the same category because high levels of perceived stress are concomitant with burnout. Stress has occurred if a specific stimulus is appraised as threatening, which results in a response that triggers the body and musters psychological resources (Love, Hagberg, & Dellve, 2011). Burnout is defined in this study as long-term exhaustion and uninterested in work-related activities. ATSs and their ATC mentors are both under enormous stress. It is not surprising that burnout is common in athletic training education programs (ATEP). To date, the antecedents of burnout among ATSs and their ATC mentors have not been established.

Becoming an ATC requires the ATS to complete a Commission of Accreditation on Athletic Training Education (CAATE) accredited ATEP at a College or University (CAATE, 2008). Part of the process of becoming an ATC is passing the National Athletic Trainers Association Board of Certification (NATABOC) examination. It is during the preparation for this examination in which ATSs experience enormous levels of chronic stress which can lead to burnout or other psychological issues (Feldman,

Sandrey, Etzel, Stilger, 2005; Forbus, Newbold, Mehta, 2011; Higgins, 2009; Stilger, Etzel, Lantz, 2001).

Reed and Giacobbi (2004) contend that the stressors of graduate assistant certified athletic trainers (GAATC) include responsibilities of students, time management, future concerns, meeting the expectations and requirements of others. ATs face similar stressors; however, their stressors focus on time management, future concerns, meeting the expectations of others, reviewing for their NATABOC examination, and performing the required clinical hours for their CAATE accredited ATEP. Reed and Giacobbi suggest that GAATCs who acknowledge sources of their stress can increase their self-awareness of improving their stress management skills.

ATs that are enrolled full time in a CAATE program are required to have clinical education experiences (CAATE, 2008). These experiences may be scheduled at any time of day seven days a week, including holidays. ATs are also exposed to various sources of chronic stress because they deal with clinical assignments, travel demands with their assigned teams, performance expectations, expectations of ATCs, expectation of the coaches, and expectations of the players (Clement & Gilson, 2012; Feldman et al. 2005; Higgins, 2009; Mazerolle, Dawson, Lazar, 2012). In most ATEPs, ATs are rarely given adequate support preparing them for coping with common sources of chronic stress that are often experienced prior to taking the NATABOC examination in these programs. In addition, the ATs are not warned about nor prepared to deal with an array of stressful

experiences related to the pre-examination period. Sample sources of chronic stress include academic concerns (i.e., responsibilities as a student), time management to successfully cope with academic and other demands of the student's daily schedule, athletic training duties, maintaining social/personal relationships, family concerns, health concerns, and future concerns for ATs and graduate ATCs (Reed & Giacobbi, 2004; Stilger et al., 2001).

Authors have provided a list of areas for needed future research in this area due to the scant research conducted on a degree that is ever-changing and a profession that is expanding rapidly. Reed and Giacobbi (2004), for instance, suggest that future research is needed to examine the effect of coping strategies on reducing chronic stress among ATCs in various job settings. Further research on determining sources of chronic stress is also needed. Stilger et al. (2001) suggests including random selection of CAATE accredited ATs attending an athletic training education program to have a more randomized sample. Forbus, Newbold, and Mehta (2011) state that future research should be completed on the common stressors of students in the College and University setting to further knowledge the population on how to properly prepare for what students endure while enrolled.

Although researchers have addressed sources of chronic stress of college students and athletes, there is relatively little research in determining sources of stress of ATs prior to taking the NATABOC examination. Determining sources of stress for senior

ATSs should lead to the use of effective coping techniques and likely improve examination performance of ATS. Thus, the research question addressed was: (1) what stressors are athletic training students most likely to endure while preparing for the NATABOC examination?

The purpose of this study was to determine sources of perceived chronic stress among ATSs in response to preparing for the NATABOC examination to help prepare the ATSs for the stressors they are likely to experience. It was hypothesized that the most common sources of chronic stress would be time management, meeting expectations, and future concerns.

CHAPTER II: LITERATURE REVIEW

ATCs assist in the prevention, immediate care, clinical evaluations, diagnosis, treatment, rehabilitation, reconditioning, and organization and administration of patients who have sustained an injury (Higgins, 2009). Often, ATCs are the first medically trained person to respond to an injured or physically active person (Higgins). In order to become qualified to practice as an ATC, undergraduate and graduate students are required to attend a CAATE accredited institution. An ATEP from a CAATE accredited institution requires a vigorous curriculum and many clinical hours.

ATCs are under considerable pressure to provide services to the level desired by their patient or athlete and to maintain the standards and expectations set by coaches, the athlete, the athlete's parents, business leaders, and organizations for which they work. Therefore, if an ATC is experiencing stress and they are advising an ATS from an ATEP, the ATSs stress level increases. ATSs attempting to meet ATEP requirements experience considerable stress. Determining the sources of chronic stress has been a neglected area of study in the past research literature.

According to Lazarus (1966), the province of stress is most clearly demarcated when we are dealing with the extremes of disturbance of biological and psychological functioning, disturbance brought about by unusual threatening, damaging, or demanding life conditions. The transactional model of stress and coping is comprised of primary

appraisal in which the stressful situation is perceived; secondary appraisal, where coping alternatives are considered; and the third step of coping, when an alternative is actually implemented (Lazarus & Folkman, 1984).

The purpose of this review is to examine the various sources of chronic stress experienced by ATs for improving stress management while preparing for the NATABOC examination. The research question addressed was: What stressors are athletic training students most likely to endure while preparing for the NATABOC examination?

This review will consist of examining sources of chronic (long-term) forms of stress among undergraduate college athletic training students who are attempting to meet ATEP requirements and pass the NATABOC examination. The review will consist of the following sections: (1) history of the stress and coping relationship, (2) sources of chronic stress among athletic training students; (3) burnout; (4) National Board of Certification examination (5) coping strategies; and (6) conclusions.

The Stress and Coping Relationship

The earliest research on stress and coping was conducted by scientists in biology and psychophysiology (Cannon, 1932). Epidemiology, personality psychology, cognitive and social psychology, and medicine are high contributors to the understanding of stress and coping (Cannon, 1932). The early research conducted on stress was focused on

physiological reactions to stressful stimuli, for example the fight or flight response to stress (Cannon, 1932).

The father of modern stress research, Hans Selye, studied with clinical observation and laboratory research (Glanz & Schwartz, 2008). Selye had a hypothesis that all living organisms exhibited nonspecific changes in response to stressors, which he labeled General Adaptation Syndrome (GAS) (Selye, 1956). GAS is an example of the reaction to acute stressors. GAS consisted of alarm reaction, resistance, and exhaustion (Selye, 1956). The central concept is that a given event or situation is perceived in different ways by different people. Perceptions of the environment are the main determinants of stress (Glanz & Schwartz, 2008). Chronic stress affects the sympathetic nervous system and endocrine functions thus influencing the occurrence and progression of health issues (Glaser & Kiecolt-Glaser, 2005).

Acute and chronic stress has been largely associated with each other. Acute stressors are associated with daily life events (Cohen, Kessler, & Gordon, 1997). Some examples of acute stressors are: a vehicle accident, an examination for a specific course, and a person losing their wallet with all of their personal information in it. Chronic stressors are associated with long-term events over months or even years (Cohen et al., 1997). Examples of chronic stressors are: living in a dysfunctional family, housing arrangements, and a certification examination. In addition, Cohen et al. (1997) explains that “chronic stressors can heighten the unfavorable implications of acute stressors,

exacerbating their effects” (p. 103). Thus, if an individual has chronic and acute stress, it can result in significantly higher stress levels (Cohen et al., 1997).

The transactional model of stress and coping is the framework for evaluating processes of coping and stressful events. Stressful experiences are constructed as person-environment transactions. For example, the impact of a stressor is mediated by the person’s appraisal of the stressors and the psychological, social, and cultural resources at their disposal (Cohen, 1984; Lazarus & Cohen, 1977). Lazarus and Folkman postulated a three-step process for the transactional model of stress and coping comprised of primary appraisal in which the stressful situation is perceived; secondary appraisal, where coping alternatives are considered; and the third step of coping, when an alternative is actually implemented (Lazarus & Folkman, 1984).

Lazarus and Folkman’s (1984) stress and coping model categorizes the individual’s stress appraisals as harm-loss, threat, and challenge. Harm-loss appraisals can be attributed to physical functions or activities—no longer part of their life. Threat appraisals are associated with negative outcomes, for example poor mental health, decreased quality of life, and illness. Threat appraisals involve anticipated harm or loss—negative emotions. Challenge appraisals are associated with positive outcomes and lower levels of anxiety and depression (Roesch & Rowley, 2005). Challenge appraisals focus on the potential for growth in an encounter—positive emotions. Cognitive appraisals reflect high levels of self-efficacy and perceived control and have been associated with

happiness and psychosocial adjustment (Shotton, Simpson, & Smith, 2007). Stress appraisals that involve hopefulness to a stressful situation have been associated with a decrease in depression and increased satisfaction of life (Pakenham & Bursnall, 2006). Thus, preparing for the NATABOC examination requires ATs to use an array of techniques to reduce stress levels.

Sources of Chronic Stress among Athletic Training Students

ATs experience stress prior to taking the NATABOC examination, and need to minimize the effects of experiencing those stressors (Lopez, 2008; Clement & Gilson, 2012). Undergraduate and graduate students often experience increased stress level during midterm and final exams. In addition, ATs are required to have clinical assignments where they have to complete required hours for the ATEP (CAATE, 2008). Students who want to become an athletic trainer need to be informed of ATEP requirements so they can plan their schedule and strategy to successfully complete their program of study. Researchers have found that during midterms and final examinations, the stress levels of ATs peak at a higher level than at any other time in the semester (Stilger et al. 2001; Feldman et al, 2005).

ATs, as part of their certification training, are enrolled, and are required to have clinical educational experiences in an institution of higher education. These clinical experiences may occur at any time of day or night, including weekends and holidays.

ATSS must also cope with similar stressors as student-athletes because they deal with travel demands, performance expectations, and expectations of the ATCs, coaches, and players (Clement & Gilson, 2012; Higgins, 2009; Stilger et al, 2001). The schedule demands challenge ATSS to prioritize their job and student duties because of the pressures of all the responsibilities required of them (Stilger et al., 2001; Reed & Giacobbi, 2004).

In most ATEPs, ATSS are not trained to cope with various sources of stress that are inherent in these programs, even if many of these stressful events and situations are expected. When a number of people experience similar stressors, every person reacts differently to them (Glanz & Schwartz, 2008; Welle & Graf, 2011). Love et al. (2011) reports that a “sustained high level of arousal can have a detrimental effect on both psychological and physiological functioning, as it might both increase susceptibility to other health hazards and be directly pathogenic” (p. 2).

ATSS are assigned to an approved ATC, which means the ATC has completed an approval process in order to teach athletic training students. Therefore, much of the stress that ATC’s endure is also experienced by their students. Pressures on the ATC and ATSS by sports coaches to approve an athlete’s return to full participation is a considerable source of chronic stress of ATCs and their ATS (Higgins, 2009; Kania, 2006).

Reed and Giacobbi (2004) contend that the stressors of GAATCs include responsibilities of ATSS, time management, expectations of coaches and players, future

concerns, and comparing job duties. Similar sources of chronic stress are experienced by senior ATs who are reviewing for their NATABOC examination, and completing the required number of clinical hours for their CAATE accredited ATEP. Reed and Giacobbi also suggest that graduate ATs who document their stressors can increase self-awareness of the thoughts and feelings of the stressors. Having the stressor written help to displace it from the mind and reduce the severity of the stressor.

Mazerolle and Pagnotta (2011) state that one ATs in their study expressed frustration about the difficulty of completing the required number of hours in their curriculum, and the required school work. The student also stated that there was limited time to engage in and enjoying other extracurricular activities. Another ATs in their study stated that there was insufficient time to relax due to other school work demands (e.g., going to class, clinical rotations), and, consequently, they do not have sufficient time for family or friends.

To determine significant sources of stress for students preparing for the NATABOC examination, personal interviews were conducted with former test-takers. One former test taker explained that the biggest source of stress was the financial cost of the NATABOC examination. The cost of taking the test can become a financial burden to individuals with low incomes. This individual also explained that stress has a huge impact on academic performance due to the fact that it can cause an individual to second guess their initial evaluation of a situation, which can lead to overanalyzing. Another

former test taker felt intense stress for preparing for the examination because they were already heavily scheduled with a job, clinical hours, class work, and family life. Adding the stress and preparation for the exam was very difficult for this person. A third individual explained that the most extensive source of stress was attempting to learn the different areas covered by the NATABOC exam and making sure that they were prepared for each section. This person indicated they began studying four months prior to the exam as a way to reduce stress.

Researchers have shown that perceived stress can be influenced by gender, participation in activities, support levels, demands of the person, and other demographics (Higgins 2009, Mazerolle, Dawson, and Lazar 2012). ATSS are under enormous stress along with the ATCs with whom they work. The combination of high levels of prolonged perceived stress and ineffective coping is likely to lead to burnout.

Burnout

Higgins (2009) juxtaposes perceived stress and burnout because people who have high levels of perceived stress also have a higher occurrence of burnout. Burnout is defined as long-term fatigue resulting in reduced interest in work-related activities (Higgins, 2009). In their study, Mazerolle and Pagnotta (2011) found that there are multiple factors causing burnout. The factors effecting ATSS are time and role strain. One ATSS reports that they have limited time during the day due to an overload of

responsibilities. Mazerolle and Pagnotta explain that time issues facilitate role strain for students and that ATSs are more likely to manage burnout by having personal time and a social support system. Role strain is defined by Mazerolle and Pagnotta a condition that forms when an ATS cannot successfully accomplish the tasks expected of their role as an ATS.

In their study of one group of university students, Ritter, Kaiser, Hopkins, Pennington, Chamberlain, and Eggett (2008) found that by the fourth semester of an ATEP students experienced high to moderate levels of burnout. They found that a moderate degree of burnout originated from clinical assignments to which the ATSs were assigned. Mazerolle et al. (2012) reports that “gaining a better understanding of the mentoring and socialization processes is important because it influences their development of effective stress management which might alleviate the experiences of burnout” (p. 327). Thus it appears that having a mentor while being an ATS can help to reduce stressors as the ATS is nearing the end of their ATEP and preparing for the NATABOC examination.

The National Board of Certification Examination

Eligibility to take the National Athletic Trainers Board of Certification (NATABOC) examination for becoming a certified athletic trainer requires completing a CAATE accredited program. CAATE accredited programs have extensive

undergraduate course requirements that involve both scholastic educational needs and athletic training service hours. Athletic training tasks include coverage of one sport at the collegiate level, multiple sports at the secondary school level, and a number of different sites in which sports competition which exposes the student to different types of injuries and includes physical therapy to rehabilitate those injuries (Stilger et al., 2001). The requirement of passing the NATABOC examination prior to becoming an ATC is a source of considerable stress for athletic training students (Clement & Gilson, 2012).

The NATABOC examination consists of 175 multiple choice questions, “stand alone” items, and focused testlets. In addition, some of these questions are scored and some questions are not scored, according to the *BOC Candidate Handbook* (2013). A “stand alone” item could consist of a question in which the person “drags and drops” an item, an injury simulation, or in which the person selects more than one answer. A focused testlet consists of a sports injury scenario followed by five questions related to the scenario. The examinee will not know which questions on the NATABOC examination are scored or not scored. The reasoning to having questions that are not scored is to test other material that could be on a future NATABOC examination. The athletic training student has four hours to complete the entire examination (Johnson, 2010).

The NATABOC examination includes five domains: (1) injury/illness prevention and wellness protection, (2) clinical evaluation and diagnosis, (3) immediate and

emergency care, (4) treatment and rehabilitation, and (5) organizational and professional health and well-being. Each of these domains contains different subjects that the athletic training student is expected to know for the NATABOC examination (Johnson, 2010).

Further explanation of each of the domains of the NATABOC examination is important to understanding the educational requirements of the athletic training students. Domain one is described by Johnson in the Role Delineation Study/Practice Analysis (Johnson, 2010) as “education participants and managing risk for safe performance and function” (p. 32). Domain two is “implement standard evaluation techniques and formulate a clinical impression for the determination of a course of action” (p. 32). Domain three is “employing standard care procedures and communication outcomes for efficient and appropriate care of the injured” (p. 32). Domain four explains that athletic training students are to be able to “recondition participants for optimal performance and function” (p. 32). Finally, domain five is “understanding and adhering to approved organizational and professional practices and guidelines to ensure individual and organizational well-being” (Johnson, 2010, p. 32). Sample questions for each domain are located in Appendix B (see page 57).

Coping Strategies

The effective use of coping strategies in response to various stressors is important to achieve success and psychological well being (Stilger et al., 2001). A coping strategy

is defined as using specific efforts to try and master, tolerate, minimize, or reduce stressful events (Taylor, 1998). Lazarus and Folkman categorized coping strategies into two categories, problem- and emotion-focused. Problem-focused coping alter the environment that is causing stress. Problem-focused coping is similar to problem-solving. Sample problem-focused coping includes defining the problem, generating solutions, and weighing the terms of the benefits (Degraff & Schaffer, 2008). Emotion-focused coping, on the other hand, involves strategies for dealing with responses to stress (Clement & Gilson, 2012). Sample emotion-focused coping includes avoidance, distancing, positive comparisons, and obtaining positive values from negative proceedings (Degraff & Schaffer).

According to Krypel and Henderson-King (2010), students who use emotion-focused coping are more likely to see education as satisfying their psychological needs, by offering opportunities to establish social connections, to gain and demonstrate independence, and to enhance self-awareness and self growth. In contrast, Krypel and Henderson-King explain that problem-focused coping is about self-development. Krypel and Henderson-King believe that students who use problem-focused coping view the challenges of college as opportunities to develop personal skills and a sense of urgency. Stilger, Etzel, and Lantz (2001) stated that male ATSS tend to work through their stressors on their own and use a problem-focused coping mechanism, and women ATSS tend to seek out help from other people and use emotion-focused coping mechanisms.

Other types of coping strategies are referred to as approach and avoidance coping (Krypel & Henderson-King, 2010). Approach coping is similar to problem-focused coping. This coping style occurs when efforts are directed at solving or managing the issue that is causing the stress. Approach coping includes strategies that assist in gathering information to make the situation less stressful, to help make educated decisions, to assist in planning, and then resolving the conflicts that cause the stress (Krypel & Henderson-King, 2010). Avoidance coping is similar to emotion-focused coping. It is common to see a person who uses avoidance coping because they will usually try to find ways to make the situation brighter, which is a form of a cognitive strategy, or try to avoid the situation, which could result in avoiding relationships. People who use the avoidance coping style could also be seen by having behavioral issues, or strategies (Krypel & Henderson-King, 2010).

Another strategy for improving stress management is to ensure the ATC is properly compensated. Barrett, Gillentine, Lamberth, and Daughtrey (2002) report that the ATC who receives appropriate financial compensation is less likely to experience burnout and are more likely to have increased job satisfaction. This will help promote a more positive working environment for the ATC and surrounding people (Barrett, et al., 2002).

Another strategy for improving stress management is to ensure that ATCs have ample time off to be able to experience the different aspects that college has to offer

(Clement and Gilson, 2012). Family and friends are very important aspects in everyone's life. Undergraduate and graduate level ATs rely on their family and friends to help them get through the everyday stressors of being an ATs, whether that is related to schoolwork, or the pressures placed on them during their clinical assignment (Feldman et al., 2005). Regardless of the stressor, ATs need to find their comfort zone to help reduce their stress.

Understanding sources of chronic forms of stress among ATs could improve their coping skills and reduce ATs stress levels (Reed, 2004). Stilger et al. (2001) reports that the level of stress experienced by ATs is due to the various responsibilities they are required to perform. This places them at an increased risk of experiencing physical and psychological problems due to not having efficient coping skills.

Stilger et al. (2001) recommend that the ATC should be a resource to assist ATs to help cope with the array of stressors to which they are exposed. They recommend that the ATC becomes better acquainted with the ATs on an appropriate and professional level, and to ask questions about their daily life interactions. This will help to show the ATs that the ATC genuinely cares about their health and physical and psychological well-being. The overwhelming stress that ATs endure make them more susceptible to depression, anger, anxiety, sleep disturbances, avoidance behavior and long term effects that predispose people to a number of medical conditions (Feldman et al., 2005; Higgins, 2009; Stilger et al., 2001). They also recommend giving ATs a day or two off each

week in order to effectively deal with their stress, and to give them time to complete additional school work.

ATCs who work with ATs can have a significant effect on the daily functioning and development of these future professionals (Stilger et al., 2001). It is important as an ATC to assist the athletic training students to learn how to multitask to help the athletic training students achieve their goals. ATCs should always have an open door policy where ATs can discuss any issue including class demands, peer conflicts, family matters, and other issues that may arise. If the ATs have this outlet they are more likely to experience decreased stress and more effective coping (Stilger et al.)

The purpose of this review was to examine the various sources of chronic stress experienced by ATs and the use of different coping strategies for improving stress management while preparing for the NATABOC examination. The following research questions were addressed in this study: (1) what sources of chronic stress are ATs most likely to experience while preparing for the NATABOC examination? It was hypothesized that the most frequent sources of chronic stress is time management, meeting expectations, and future concerns.

CHAPTER III: METHOD

Participants

Eleven university seniors ATs from a National Collegiate Athletic Association Division I University located in the southeastern U.S. volunteered to participate in this investigation. The participants for this study were three men and eight women (Mage = 25 yrs.) ranged in age from 18-32 yrs, who were enrolled in a CAATE accredited ATEP and were preparing to take the NATABOC examination. At the time of the study each of the ATs were preparing for the NATABOC examination, were enrolled part-time or more in school, and were working at their clinical assignment. The clinical assignment, consisting of different athletic training settings (ex: High School, College, Professional, Physical Therapy, and Occupational settings) is typically experienced during the two or three year ATEP.

Procedures

The population for this study were senior ATs enrolled in a CAATE accredited ATEP who have taken the NATABOC examination within the past ten days. The sample for this study were senior level university students enrolled in a CAATE accredited ATEP in a National Collegiate Athletic Association (NCAA) Division I University who have taken the NATABOC examination. A conventional qualitative content analysis

approach was used during this study to address the ATSS personal chronic stress levels (Charmaz, 2006). The volunteers for this study were contacted through electronic correspondence and were interviewed on one occasion within ten days after their scheduled examination. The interview consisted of 13 questions that inquired about stress levels prior to, during, and following the NATABOC examination, the stress levels towards each domain prior to and during the NATABOC examination and how prepared the ATS felt their ATEP prepared them prior to and following the NATABOC. The researcher explained that all responses were confidential and that there is no “right” or “wrong” answers. The participants were told to answer each question to the best of their ability, and in as much depth as possible. The questions addressed are located in the Appendix A (see page 54).

After the study has been completed participants were sent another personalized electronic correspondence to the participants email address, to explain the rationale of the study, the results of the study, and the plan for the data collected if the participant elected to do so. All personal information will be kept confidential and each interviewee was thanked for participating in the interview. Participants with questions can e-mail the researcher, Christina Aquila (Cl4c@mtmail.mtsu.edu).

Data Analysis

Interviews with participants were voice recorded in order to promote accuracy of each response. Participants were informed that they can ask to have the recorder switched off and to have their responses recorded from written notes if they feel uncomfortable having their answers voice recorded. Following each interview participants were contacted to see if they wanted to make additional comments to any question.

Thematic Analysis

Analysis of the qualitative data was reached by using *Atlas.ti* to assist in grouping the common answers from the participants of this study. *Atlas.ti* is a software program that allows analyzing of data side-by-side. This software helps to visually connect different survey answers. In addition, *Atlas.ti* helps to efficiently code the data into correct groups or themes. The interview answers were coded by theme and a constant comparative method was used. Deductive reasoning categories emerged from the data through the researcher's careful examination and constant evaluation. To assist in the process, this researcher used *Atlas.ti* which helped to code and organize the information the researcher obtains. All themes were reviewed by the researchers before a final presentation of data was presented. This assisted in solving the research question: what stressors are ATSS most likely to endure while preparing for the NATABOC examination?

Categories of chronic stressors were designated by the similarities in response content generated in the interviews. Responses were assigned to one of three categories, time management, meeting expectations, and personal life. Thus, deductive content analysis was used to assign participants' statements to one of these pre-determined categories.

Approval of this study from the University's Institutional Review Board (IRB) of the Protection of Human Subjects was granted. Participants were asked to volunteer for this study; no rewards or incentive to participate were offered. Participants were informed that they may withdraw from the study at any time, prior to or during the interview, each participant was asked to sign a written consent form prior to the interview.

CHAPTER IV: RESULTS

The analysis of the participant's sources of chronic stress while preparing for the NATABOC examination resulted in three categories of stress. Participants in this study were asked a series of questions, located in Appendix A, to elaborate on their experiences and stressors. The participants were asked to describe the experiences and stressors as they deemed fit. All 11 participants who volunteered for the study (100%) agreed to be interviewed. Four participants asked to avoid having their voice recorded in responding to interview questions. The likely motive of these respondents for completing the interview was their interest in helping future senior ATSS accomplish their goals by reducing stress rates while preparing for the NATABOC examination. A summary of respondents' characteristics is located in Table 1.

Table 1

Student Athletic Training Survey Summary

Characteristic	<i>n</i>	%
<i>Gender</i>		
Female	8	72.70
Male	3	27.30
<i>Age</i>		
18-20	0	0.00
21-23	4	36.40
24-26	5	45.50
27-29	1	9.10
30-32	1	9.10

The theme of *Time Management* was generated by a number of participants which reflected the participants' difficulty in being able to complete all assigned tasks. An example of time management is that a number of students felt that having a full course load, a clinical assignment, and studying for the NATABOC examination was too much

to be able to complete in one semester. A number of participants felt as if there were not enough hours in the day to accomplish everything that was expected.

The label *Meeting Expectations* was based on the ATs communicating their need to please and meet the expectations of coaches, family, friends, co-workers, and to meet their own goals and expectations. For example, one participant stated that he needed to pass the NATABOC examination because he was already offered a graduate assistantship; therefore, both internal expectations (he felt he needed to pass the examination) and external expectations (the graduate schools need for him to pass to take the graduate assistant spot) were experienced.

The category *Personal Life* reflected the respondents having required tasks to complete that were unrelated to school. For example, one student's family experienced their house flooding, another student was getting married, and another student was preparing for a baby. These types of life events were collectively categorized as *Personal Life*.

Time Management

The most frequently cited stressor addressed was documented as *time management*. Time management was defined as balancing time for school responsibilities, clinical rotation responsibilities, personal responsibilities and studying for the NATABOC examination. Another definition of time management included

feeling stressed by not having enough time to meet the demands of this program and to put sufficient time into studying for the exam. Eight out of 11(72.7%) ATS's responded by explaining one of the definitions of times management.

Sample statements that reflected time management were "I have only one course but the busy work we get is pretty much close to a full course load worth of homework. I have to do clinical hours and they increased the amount of hours this year... It's kind of like there aren't enough hours in the day to actually study properly for this exam."

Another example was "I felt like because I have five classes it affected my studying preparation. I was always balancing a lot in combination with studying for the BOC and I also felt like I wasn't being exposed to the actual test format. While preparing for the exam, being a fulltime student, and trying to save money to move, I felt as if I did not have the time to study as much as I needed."

One ATS explained that while preparing for the exam they were taking a full course load, planning a personal event, and were experiencing poor health that required taking medication which induced drowsiness. The combination of events reduced the amount of time they were able to study resulting in time management being a significant stressor for this ATS. Another ATS explained that they already had significant stress levels with their everyday routine. As a result, months prior to the exam were particularly stressful. This particular ATS was dealing with a family tragedy and they also lost their wallet with all of their personal information that they needed for the

NATABOC examination. They did not have the time to get everything replaced and it made the individual have to change their schedule. The time it took to get all the personal information back was extremely stressful in addition to spending time with the family that resulted in stressing about having significant time to prepare for the NATABOC examination.

Another participant stated “I felt like because I had five classes I was balancing a lot in combination of studying for the BOC. Then I felt like I wasn’t being exposed to the actual test format so I had to find time to study the test format.” Another student exclaimed, “The biggest source of stress was not knowing exactly what to study. Also finding time outside of my school schedule to study for the test.” Furthermore, for these ATS’s time management was a significant stressor while preparing for the NATABOC examination. Each of these individuals explained that the other responsibilities (classes, clinical rotations, etc.) expected of them made it feel like there was not enough time to fully prepare for the NATABOC examination.

Meeting Expectations

The second most frequently cited source of chronic stress was meeting expectations. Two categories within this theme emerged they are called “internal expectations,” which are the ATSs expectation of their own performance and meeting their goals, and “external expectations” which are the expectations of others. This

graduating class included several students who intended to matriculate to graduate school or to become employed. Out of the 11 participants, six (54.5%) of the participants stated meeting expectations as a common stressor. In addition, these six ATS's had a graduate assistantship or employment offer based upon successful completion of their ATEP and the NATABOC examination. One participant explained why this was so stressful, "I felt like okay I need to pass this now because I have a job lined up."

One participant stated, "The biggest source of stress was the preparations I had to take for the exam. I was also worried about passing because I have already been offered a graduate assistantship." Another student reported, "The thought of the graduate assistantship I have interviewed for and waiting on the results of them to come in and then being offered one was a big source of stress because it had to do with the future." Another ATS explained that "I already had an interview and been offered a graduate assistant position. This created added stress to pass the exam on the first attempt. The cost of the exam being \$300 and the thought of having to pay that again if I didn't pass was overwhelming." This particular student was worried about the expectations they put on themselves for not saving more money in case they did not pass the NATABOC examination on the first attempt.

Personal Life

Maintaining a personal life (family, friends, etc.) was extremely important for dealing with the various sources of stress experienced by ATS's. They felt it was important to have a strong support system to be able to succeed. Participants in this study defined personal life as time or events including family, friends, and relationships. Personal life was also defined as both a stressor and a coping strategy.

One participant stated, "Well I have a family, with a wife and child and another child on the way so the thought of what this exam means for the family weighed on my mind." They also explained that being able to provide for them is important and they feel as if they are not doing the job that they need to do. Another participant explained, "My family's house flooded so I would go and help with repairs as much as time allowed. While I was there arguments would happen and they would stress me out more." This ATS was experiencing family as a stressful event in their life and as much as she explained that she wanted to help them fix the house it was almost too hard to deal with. Another participant was planning a personal celebration while preparing for the NATABOC examination and the stress was almost intolerable.

One ATS explained that when their stress level became excessive they would spend time with family or friends to help reduce their stress. The ATS explained, "Spending time with my family was the one thing that always made me feel better about the situation I was in. My family would always congratulate me on all my hard work and

it made me think that maybe I was doing a good job in school and didn't have as much to worry about with this exam. The events in one's personal life appear to be a factor in either increasing or managing stress in preparing for and completing the NATABOC examination.

NATABOC Domain Stressors

One focus of this study was to determine the level of stress for participants across the domains of the NATABOC examination prior to and during the examination. This researcher also asked the participants about their level of preparation as provided by their ATEP for the NATABOC examination prior to the examination and after the examination. Table 2 shows the percentage of stress level for the ATS while preparing for the NATABOC examination. Table 3 shows the percentage of how stressful each of the domains was prior to the examination. Table 4 shows the percentage of how stressful each of the domains was while taking the examination. Table 5 shows the percentage of how prepared the ATS felt their ATEP prepared them for each of the domains prior to the examination. Table 6 shows the percentage of how prepared the ATS felt their ATEP prepared them for each of the domains following the examination.

Table 2

Level of Stress while Preparing for the NATABOC Examination

Characteristic	<i>n</i>	%
<i>How stressed were you while preparing for the NATABOC examination</i>		
Not at all stressed	0	0.00
Very rarely stressed	0	0.00
Rarely stressed	0	0.00
Slightly stressed	0	0.00
Occasionally stressed	0	0.00
Moderately stressed	3	27.27
Somewhat stressed	2	18.18
Frequently stressed	2	18.18
Very stressed	2	18.18
Extremely stressed	2	18.18

Table 3

Level of Stress Preparing for each Domain on the NATABOC Examination

Characteristic	n	%
<i>How stressful were each of the domains while preparing for the NATABOC examination</i>		
Injury and Illness Prevention		
Not at all stressed	0	0.00
Very rarely stressed	1	9.09
Rarely stressed	2	18.18
Slightly stressed	2	18.18
Occasionally stressed	4	36.36
Moderately stressed	1	9.09
Somewhat stressed	0	0.00
Frequently stressed	1	9.09
Very stressed	0	0.00
Extremely stressed	0	0.00
Clinical Evaluation and Diagnosis		
Not at all stressed	0	0.00
Very rarely stressed	0	0.00
Rarely stressed	5	45.45
Slightly stressed	1	9.09
Occasionally stressed	3	27.27
Moderately stressed	1	9.09
Somewhat stressed	0	0.00
Frequently stressed	0	0.00
Very stressed	1	9.09
Extremely stressed	0	0.00
Immediate and Emergency Care		
Not at all stressed	1	9.09
Very rarely stressed	1	9.09
Rarely stressed	3	27.27
Slightly stressed	0	0.00
Occasionally stressed	4	36.36
Moderately stressed	1	9.09
Somewhat stressed	0	0.00
Frequently stressed	0	0.00
Very stressed	1	9.09
Extremely stressed	0	0.00
Treatment and Rehabilitation		
Not at all stressed	0	0.00
Very rarely stressed	0	0.00
Rarely stressed	1	9.09
Slightly stressed	2	18.18
Occasionally stressed	0	0.00
Moderately stressed	2	18.18
Somewhat stressed	5	45.45
Frequently stressed	1	9.09
Very stressed	0	0.00
Extremely stressed	0	0.00
Organizational and Professional Well-Being		
Not at all stressed	0	0.00
Very rarely stressed	0	0.00
Rarely stressed	1	9.09
Slightly stressed	0	0.00
Occasionally stressed	1	9.09
Moderately stressed	1	9.09
Somewhat stressed	2	18.18
Frequently stressed	4	36.36
Very stressed	1	9.09
Extremely stressed	1	9.09

Table 4

Level of Stress while taking the NATABOC Examination for each Domain

Characteristic	n	%
<i>How stressful were each of the domains while taking the NATABOC examination</i>		
Injury and Illness Prevention		
Not at all stressed	1	9.09
Very rarely stressed	1	9.09
Rarely stressed	2	18.18
Slightly stressed	5	45.45
Occasionally stressed	2	18.18
Moderately stressed	0	0.00
Somewhat stressed	0	0.00
Frequently stressed	0	0.00
Very stressed	0	0.00
Extremely stressed	0	0.00
Clinical Evaluation and Diagnosis		
Not at all stressed	0	0.00
Very rarely stressed	1	9.09
Rarely stressed	3	27.27
Slightly stressed	3	27.27
Occasionally stressed	1	9.09
Moderately stressed	3	27.27
Somewhat stressed	0	0.00
Frequently stressed	0	0.00
Very stressed	0	0.00
Extremely stressed	0	0.00
Immediate and Emergency Care		
Not at all stressed	1	9.09
Very rarely stressed	1	9.09
Rarely stressed	3	27.27
Slightly stressed	1	9.09
Occasionally stressed	3	27.27
Moderately stressed	1	9.09
Somewhat stressed	1	9.09
Frequently stressed	0	0.00
Very stressed	0	0.00
Extremely stressed	0	0.00
Treatment and Rehabilitation		
Not at all stressed	0	0.00
Very rarely stressed	1	9.09
Rarely stressed	2	18.18
Slightly stressed	2	18.18
Occasionally stressed	2	18.18
Moderately stressed	1	9.09
Somewhat stressed	2	18.18
Frequently stressed	0	0.00
Very stressed	0	0.00
Extremely stressed	0	0.00
Organizational and Professional Well-Being		
Not at all stressed	0	0.00
Very rarely stressed	1	9.09
Rarely stressed	1	9.09
Slightly stressed	2	18.18
Occasionally stressed	2	18.18
Moderately stressed	2	18.18
Somewhat stressed	2	18.18
Frequently stressed	1	9.09
Very stressed	0	0.00
Extremely stressed	0	0.00

Table 5

Level of Preparedness from their ATEP prior to the NATABOC Examination

Characteristic	n	%
<i>How competent did you feel that your ATEP prepared you prior to the NATABOC examination</i>		
Injury and Illness Prevention		
Not at all prepared	0	0.00
Very rarely prepared	0	0.00
Rarely prepared	0	0.00
Slightly prepared	0	0.00
Occasionally prepared	0	0.00
Moderately prepared	1	9.09
Somewhat prepared	3	27.27
Frequently prepared	7	63.64
Very prepared	0	0.00
Extremely prepared	0	0.00
Clinical Evaluation and Diagnosis		
Not at all prepared	0	0.00
Very rarely prepared	0	0.00
Rarely prepared	0	0.00
Slightly prepared	0	0.00
Occasionally prepared	0	0.00
Moderately prepared	2	18.18
Somewhat prepared	1	9.09
Frequently prepared	6	54.55
Very prepared	1	9.09
Extremely prepared	1	9.09
Immediate and Emergency Care		
Not at all prepared	0	0.00
Very rarely prepared	0	0.00
Rarely prepared	0	0.00
Slightly prepared	0	0.00
Occasionally prepared	0	0.00
Moderately prepared	1	9.09
Somewhat prepared	3	27.27
Frequently prepared	4	36.36
Very prepared	1	9.09
Extremely prepared	2	18.18
Treatment and Rehabilitation		
Not at all prepared	0	0.00
Very rarely prepared	0	0.00
Rarely prepared	0	0.00
Slightly prepared	0	0.00
Occasionally prepared	1	9.09
Moderately prepared	2	18.18
Somewhat prepared	2	18.18
Frequently prepared	5	45.45
Very prepared	1	9.09
Extremely prepared	0	0.00
Organizational and Professional Well-Being		
Not at all prepared	0	0.00
Very rarely prepared	0	0.00
Rarely prepared	4	36.36
Slightly prepared	1	9.09
Occasionally prepared	1	9.09
Moderately prepared	2	18.18
Somewhat prepared	1	9.09
Frequently prepared	2	18.18
Very prepared	0	0.00
Extremely prepared	0	0.00

Table 6

Level of Preparedness from their ATEP following the NATABOC Examination

Characteristic	n	%
<i>How competent did you feel that your ATEP prepared you following the NATABOC examination</i>		
Injury and Illness Prevention		
Not at all prepared	0	0.00
Very rarely prepared	0	0.00
Rarely prepared	0	0.00
Slightly prepared	0	0.00
Occasionally prepared	0	0.00
Moderately prepared	0	0.00
Somewhat prepared	1	9.09
Frequently prepared	10	90.91
Very prepared	0	0.00
Extremely prepared	0	0.00
Clinical Evaluation and Diagnosis		
Not at all prepared	0	0.00
Very rarely prepared	0	0.00
Rarely prepared	0	0.00
Slightly prepared	0	0.00
Occasionally prepared	0	0.00
Moderately prepared	1	9.09
Somewhat prepared	0	0.00
Frequently prepared	8	72.73
Very prepared	1	9.09
Extremely prepared	1	9.09
Immediate and Emergency Care		
Not at all prepared	0	0.00
Very rarely prepared	0	0.00
Rarely prepared	0	0.00
Slightly prepared	0	0.00
Occasionally prepared	0	0.00
Moderately prepared	0	0.00
Somewhat prepared	3	27.27
Frequently prepared	5	45.45
Very prepared	2	18.18
Extremely prepared	1	9.09
Treatment and Rehabilitation		
Not at all prepared	0	0.00
Very rarely prepared	0	0.00
Rarely prepared	0	0.00
Slightly prepared	0	0.00
Occasionally prepared	1	9.09
Moderately prepared	2	18.18
Somewhat prepared	1	9.09
Frequently prepared	5	45.45
Very prepared	1	9.09
Extremely prepared	1	9.09
Organizational and Professional Well-Being		
Not at all prepared	0	0.00
Very rarely prepared	0	0.00
Rarely prepared	2	18.18
Slightly prepared	0	0.00
Occasionally prepared	1	9.09
Moderately prepared	6	54.55
Somewhat prepared	0	0.00
Frequently prepared	2	18.18
Very prepared	0	0.00
Extremely prepared	0	0.00

Chapter 4 presents qualitative and quantitative data for research question, determining sources of chronic stress. Analyses of the collected quantitative and qualitative data were performed using EpiData 3.1 and Atlas.ti.

ATs preparing to take the NATABOC examination classified three major sources of stress; Time Management, Meeting Expectations, and Personal Life. In addition, the ATs categorized the amount of stress they endured while preparing for, taking, and following the NATABOC examination.

The average findings for students while preparing for the NATABOC examination was that they were frequently stressed due to the stress of time management, meeting expectations, and personal life. The ATs reported that the domain they stressed about the most while preparing for the NATABOC examination was *Organizational and Professional Health and Well-Being*. The ATs reported that while taking the NATABOC examination the two domains that they were most stressed about were *Treatment and Rehabilitation* and *Organizational and Professional Health and Well-Being*. ATs reported that the domain they felt most prepared for prior to the NATABOC examination was *Immediate and Emergency Care*. And finally, ATs reported that the domain they felt that they were most prepared for following the NATABOC examination was *Clinical Evaluation and Diagnosis* and *Immediate and Emergency Care*.

CHAPTER V: DISCUSSION

The purpose of this study was to identify sources of chronic stress experienced by ATSS who are preparing to take the NATABOC examination. There has been limited research on the stress level of ATSS and, more specifically, on their stress levels within six months prior to the NATABOC examination.

The results indicated that time management was the most frequently cited source of chronic stress for senior ATSS preparing to take the NATABOC examination. Eight of the 11 (72.7%) students' referenced balancing time for school responsibilities, clinical rotation responsibilities, personal responsibilities, and enough time to meet program demands while preparing for the NATABOC examination were examples of this stressor. Time management as the most frequently cited source of stress for an ATSS has been identified as a significant source of chronic stress in previous studies.

The time management was defined in this study as balancing time for school responsibilities, clinical rotation responsibilities, personal responsibilities and studying for the NATABOC examination. Another definition of time management included feeling stressed by not having enough time to meet the demands of this program and to put sufficient time into studying for the exam. This source of chronic stress examined in this study supported previous related research. For instance, Mazerolle and Pagnotta (2011) found that "ATSS had time-related issues centered on the amount of time

necessary for the student as well as those of being a college student” (p. 63). They also found that having limited time impacted the amount of enjoyment they could experience before having to return to the daily routine of classes, clinical rotations, and homework.

Reed and Giacobbi (2004) found that time management was a source of stress for five out of six (83.3%) of their participants, which is similar to chronic sources of stress relating to senior ATs preparing for the NATABOC examination. Reed and Giacobbi (2004) found that students felt stress in relation to time management due to a number of reasons, but most importantly, changes to the different sports schedules, long work hours at their clinical site, having time to eat or sleep properly, and finding time to socialize with others outside of the profession. ATs in this study that were preparing for the NATABOC examination did not address changes in sports schedules or having sufficient time to eat. However, long work hours at their clinical site, having sufficient time for proper sleep, and finding time to spend with friends or family required proper time management skills, thereby forming a source of stress for these individuals.

Mazerolle et al. (2012) suggest that ATs develop time management skills because the demands of athletic training often go beyond the hours in the day. The participants of Mazerolle et al.’s study indicate insufficient time to see their parents, ATs preparing for the NATABOC examination had similar concerns in the current study indicating not having enough time with their parents or with their own families.

Along these lines, the results of Higgins' (2009) study indicated that "diminished time for family and/or leisure" was a concern of ATSS (p. 84). Thus, results in the Mazerolle et al. (2012) and Higgins (2009) studies support the current findings that ATSS preparing for the NATABOC examination do not have sufficient time with their families to help them cope with examination-related stress.

In addition, other studies have indicated that time management is a significant source of stress for ATCs who are responsible for the duties specified by their job description. Therefore, it is understandable that ATSS perceive the same stressors due to being assigned to an ATC, and to assist in those job duties. In addition, the ATSS are also responsible for being a college student, all the while, preparing for the NATABOC examination during their last semester as a senior student (Mazerolle et al., 2012; Reed & Giacobbi, 2004).

The second most frequently cited source of chronic stress in this study was meeting expectations. Meeting expectations was separated into two categories, internal expectations and external expectations. Internal expectations are the expectations one has of themselves and external expectations are the expectations people have of that individual. Six out of 11 (54.5%) participants reported that internal (i.e., self) and external expectations (e.g., family, friend) were a significant source of stress while preparing for the NATABOC examination. Six ATSS had a graduate assistantship or employment offer based upon successful completion of their ATEP and passing the

NATABOC examination, which influenced the internal and external expectations of the ATS. Higgins (2009) found that ATSs listed that the “quality of their work, financial issues, exams/grades, and relationships with faculty or clinical instructors” (p. 84) were significant sources of stress. Each of these stressors are related to internal expectations (e.g., quality of their work, financial issues, exams) or external expectations (e.g., exams/grades, quality of their work, relationships with faculty or clinical instructors) that were found by researching ATSs preparing for the NATABOC examination.

Furthermore, the ATSs has internal expectations (e.g., passing the examination so they could further their education or earn a salary to provide for themselves and their family) and external expectations (e.g., the graduate school expecting their arrival or their family needing the income) to succeed with their education and passing of the NATABOC examination.

Mazerolle and Pagnotta (2011) reported that the expectations of going to class, maintaining good grades to get through their ATEP, and clinical rotations are too much to expect from a student. They found that “many educational programs that employ GAATCs often follow guidelines that set limits on work hours per week; however, it appears that those requirements are not enforced strictly or followed” (p. 324). Despite restrictions, the GAATC is expected to cover all events that are scheduled at their assigned location. The results of past studies suggest that having unrealistic expectations of an ATS or GAATC will lead to burnout and excessive stress levels (Mazerolle et al.,

2012; Mazerolle and Pagnotta, 2011; Reed and Giacobbi, 2004; Riter et al., 2008). Based on past research, GAATCs, ATs, and ATs preparing for the NATABOC examination are exposed to considerable internal and external expectations.

The third most cited source of chronic stress was lack of a personal life. Personal life was defined as time or events that involve family, friends, and relationships (Degraff & Schaffer, 2008). Results of this study indicated that ATs preparing for the NATABOC examination classified personal life as a stressor, but also as a coping strategy.

Mazerolle and Pagnotta (2011) classified social support and personal time separately. They suggested that social support and personal time are coping strategies that will reduce burnout, which they classified as a type of stressor (Mazerolle & Pagnotta, 2011). The personal life of ATs, ATCs, or GAATC is traditionally very limited, resulting in elevated stress levels (Mazerolle, 2010; Mazerolle et al., 2012; Pitney, 2010). It is limited due to the sports schedules, school schedules, and the schedules of the ATC. Reed and Giacobbi (2004) had similar findings suggesting that GAATCs experience considerable stress due to a lack of personal life because they were pressured by family and friends that being a student was more important than anything else. Social support was also listed as a coping mechanism due to the participants finding it important to seek advice regarding school and clinical decisions from family, friends, and coaches

(Mazerolle et al., 2012; Mazerolle & Pagnotta, 2011; Reed & Giacobbi, 2004; Riter et al., 2008).

ATs preparing to take the NATABOC examination classified three major sources of stress, time management, meeting internal and external expectations, and personal life. In addition, the ATs categorized the amount of stress they endured while preparing for, taking, and immediately following the NATABOC examination.

In general, students who prepared for the NATABOC examination experienced frequent chronic stress. Higgins (2009) contends that diverted thinking makes it challenging to stay focused. The ATs reported that the domain about which they perceived as most stressful while preparing for the NATABOC examination was *Organizational and Professional Health and Well-Being*. The ATs reported that while taking the NATABOC examination the two most stressful domains were *Treatment and Rehabilitation* and *Organizational and Professional Health and Well-Being*. Reed and Giacobbi's (2004) participants report that documentation of athletic injuries and rehabilitation is a significant stressor. These findings are concurrent to ATs who stated that they were most stressed about *Treatment and Rehabilitation* and *Organizational and Professional Health and Well-Being*. ATs reported that the domain about which they felt most prepared prior to the NATABOC examination was *Immediate and Emergency Care*. ATs reported that the domain about which they felt most prepared following the NATABOC examination was *Clinical Evaluation and Diagnosis* and *Immediate and*

Emergency Care. The findings related to each of the domains and the inconsistency of results prior to, during, and following the NATABOC examination, regarding the different domains, demonstrates the high degree of diverted thoughts of the ATs.

Future Research Directions

While there has been extensive research on sources of stress among undergraduate and graduate students, relatively little research has been conducted, however, on sources of stress among ATs. Higgins (2009) suggests that it would be beneficial for researchers to specifically focus on the effect of chronic stress on academic performance among ATs during their time in an ATEP. Reed and Giacobbi (2004) believe that future research should address coping interventions with athletic trainers in various settings, particularly for National Collegiate Athletic Association Division I ATEPs.

Researchers have made several suggestions about future research directions in this area. For example, Stilger (2001) suggests that future experimental studies should include a no-treatment control group, and that the program being examined should be accredited by CAATE to better understand the stress experienced by ATs at the collegiate level. Feldman, Sandrey, Etzel, and Stilger (2005) suggest that future research be conducted on levels of stress and coping in graduate assistant athletic trainers during the months of October and March due to exam schedules and the overlap of sport seasons. They also

suggest adding questions regarding whether ATs who engage in regular exercise are less stressed than ATs who have strong time restrictions and do not regularly exercise.

Due to the small sample size in this study, the extent to which the results can be generalized to other athletic training programs is marginal. Additional research to confirm the current findings is needed. Nevertheless, the current findings illustrate sources of chronic stress for a group of senior ATs enrolled in ATEP and preparing for the NATABOC examination were identified. Additional research with a larger sample size is needed to further identify sources of chronic stress among the students who are approaching a high pressure due to the ATEP examination. Future studies should include educational specialists to provide more effective stress management training program for these students, thereby improving exam scores and graduation rates.

Another recommendation for future studies in this area is to examine the effectiveness of different coping strategies on the ATs sources of chronic stress while ATs are preparing for the NATABOC examination, specifically related to problem-focused coping and emotion-focused coping strategies. The results of this study regarding time management, internal expectations, external expectations, personal life, and the stress of each specific domain addressed on the NATABOC examination can help to provide a good starting point for ATs' to understand different types of stress when they are preparing for the NATABOC examination. This information will have implications for effective use of coping strategies to mediate these stressful experiences.

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APPENDICIES

APPENDIX A: INTERVIEW QUESTIONS

1. On a scale 1(not at all) to 10 (extremely), how stressed did you feel before the NATABOC examination?
2. Please describe the biggest sources of stress you endured in the coming weeks of the examination.
3. Please describe the biggest sources of stress you endured during the last 24 hours before the examination.
4. Please describe any feelings or stressors you felt immediately following the examination.
5. On a scale from 1 (not at all) to 10 (very much) how stressful was it preparing for the examination?
6. One a scale from 1 (not at all) to 10 (very), how stressful were each of the domains while preparing for the examination.
 - a. Injury/Illness Prevention and Wellness Protection
 - b. Clinical Evaluation and Diagnosis
 - c. Immediate and Emergency Care
 - d. Treatment and Rehabilitation
 - e. Organizational and Professional Health and Well-Being
7. One a scale from 1 (not at all) to 10 (very), how stressful were each of the domains while taking the examination.

- a. Injury/Illness Prevention and Wellness Protection
 - b. Clinical Evaluation and Diagnosis
 - c. Immediate and Emergency Care
 - d. Treatment and Rehabilitation
 - e. Organizational and Professional Health and Well-Being
8. On average, how many hours of sleep were you getting a night prior to the examination
- a. Please explain if you felt this was enough sleep prior to the examination
 - b. Please explain some of the causes if you had lack of sleep on some nights?
9. Prior to the examination, on a scale of 1 (not at all) and 10(completely) please determine how prepared you felt that your ATEP prepared you for the examination.
10. Please rank each of the domains and how prepared you felt using 1(not at all competent) to 10(fully competent)
- a. Injury/Illness Prevention and Wellness Protection
 - b. Clinical Evaluation and Diagnosis
 - c. Immediate and Emergency Care
 - d. Treatment and Rehabilitation
 - e. Organizational and Professional Health and Well-Being

11. After the examination, on a scale of 1 (not at all) and 10(completely) please determine how prepared you felt that your ATEP prepared you for the examination.

12. Please rank each of the domains and how prepared you felt using 1(not at all competent) to 10(fully competent)

- a. Injury/Illness Prevention and Wellness Protection
- b. Clinical Evaluation and Diagnosis
- c. Immediate and Emergency Care
- d. Treatment and Rehabilitation
- e. Organizational and Professional Health and Well-Being

13. Please explain why you did not feel competent in ____ domains.

APPENDIX B: QUESTIONS FROM EACH DOMAIN

A sample question from domain one, with an asterisk following the correct answer, is:

Transforming a drug so it can be metabolized is known as:

- A. Drug Half-Life
- B. Steady State
- C. Potency
- D. Biotransformation *
- E. Metabolism

An example of a question from domain two would be:

While performing a lower quarter neurological screen, you perform sensory testing on the L1 nerve root. Where would you perform this test?

- A. Back pocket *
- B. Side pocket
- C. Just above the knee
- D. Shin
- E. 5th Metatarsal

An example of a question from domain three would be:

An athlete states that he feels like his vision is becoming black in one eye, what could be wrong?

- A. Scratched cornea
- B. Bruised cheekbone
- C. Torn contact
- D. Retinal detachment *
- E. Concussion

An example of a question from domain four would be:

What type of brace may be used on athletes who experience rotary instability as a result of injury to the anterior cruciate ligament?

- A. Functional brace *
- B. Prophylactic brace
- C. Rehabilitative brace
- D. Postoperative brace
- E. McConnell brace

An example of a question from domain five would be:

During a baseball game, a hitter slides into second base. You notice that second base is no longer completely put into the ground. If you do not report this to the officials, it can be considered:

- A. Breach of duty
- B. Abandonment
- C. Foreseeability of harm

D. Negligence *

E. Commission

APPENDIX C: IRB APPROVAL

April 26, 2013

Christina Aquila, Mark Anshel
Department of Health and Human Performance
cla4c@mtmail.mtsu.edu, Mark.Anshel@mtsu.edu

Protocol Title: "SOURCES OF CHRONIC STRESS AMONG ATHLETIC TRAINING STUDENTS WHO HAVE TAKEN THE BOARD OF CERTIFICATION EXAMINATION"

Protocol Number: 13-330

Dear Investigator(s),

The exemption is pursuant to 45 CFR 46.101(b) (2). This is because the research being conducted involves the use of survey materials, interviews or observation of public behavior.

You will need to submit an end-of-project report to the Compliance Office upon completion of your research. Complete research means that you have finished collecting data and you are ready to submit your thesis and/or publish your findings. Should you not finish your research within the three (3) year period, you must submit a Progress Report and request a continuation prior to the expiration date. Please allow time for review and requested revisions. Your study expires on **April 26, 2016**.

Any change to the protocol must be submitted to the IRB before implementing this change. According to MTSU Policy, a researcher is defined as anyone who works with data or has contact with participants. Anyone meeting this definition needs to be listed on the protocol and needs to provide a certificate of training to the Office of Compliance. **If you add researchers to an approved project, please forward an updated list of researchers and their certificates of training to the Office of Compliance before they begin to work on the project. Once your research is completed, please send us a copy of the final report questionnaire to the Office of Compliance.** This form can be located at www.mtsu.edu/irb on the forms page.

Also, all research materials must be retained by the PI or **faculty advisor (if the PI is a student)** for at least three (3) years after study completion. Should you have any questions or need additional information, please do not hesitate to contact me.

Sincerely,

Andrew W. Jones

Compliance Office
615-494-8918
Compliance@mtsu.edu

APPENDIX D: INFORMED CONSENT

Middle Tennessee State University Institutional Review Board Informed Consent Document for Interviews		MTSU IRB Approved Date: 4/28/2013
Name of participant: _____		
Date of Birth: _____		
<p>The following information is provided to inform you about the interview and your participation in it. Please read this form carefully and feel free to ask any questions you may have about this interview and the information given below. You will be given an opportunity to ask questions, and your questions will be answered. Also, you will be given a copy of this consent form. Your participation is voluntary and you are also free to withdraw at any time.</p>		
<p>You are being asked to participate in this interview because we are researching) What stressors are athletic training students most likely to endure while preparing for the NATABOC examination, and what is the most effective coping mechanism while preparing for the NATABOC examination? Your responses will be audio taped and/or videotaped.</p>		
<p>You may get emotional when sharing your experiences. We can pause to rest at any time during the interview or stop if you choose to do so. However, this is an opportunity to share your story helping to preserve the past and hopefully enjoy yourself as well.</p>		
<p>The data gathered in this study is not confidential with respect to your personal identity unless you specify otherwise. When this material becomes available, it may be read, quoted, or cited from and disseminated for educational and scholarly purposes.</p>		
<p>All efforts, within reason, will be made to keep the personal information in your research record private but total privacy cannot be promised. Your information may be shared with the MTSU Institutional Review Board, the Office of Human Research Protections, if you or someone else is in danger or if we are required to do so by law.</p>		
<p>If you should have any questions about this interview please feel free to contact Christina Aquila at 615-946-5289 or cla4c@mtmail.mtsu.edu or my Faculty Advisor, Dr. Mark Anshel at Mark.Anshel@mtsu.edu. For additional information about giving consent or your rights as a participant in this interview, please feel free to contact the Middle Tennessee State University Office of Compliance at (615) 494-8918.</p>		
<p>STATEMENT BY PERSON AGREEING TO PARTICIPATE IN THIS INTERVIEW</p>		
<p>I have read this informed consent document and the material contained in it has been explained to me verbally. I understand each part of the document, all my questions have been answered, and I freely and voluntarily choose to participate in this interview.</p>		
_____	_____	
Date	Signature of Interviewee	
Consent obtained by:		
_____	_____	
Date	Signature of Interviewer(s)	

Printed Name and Title		