Athletic Trainers' Knowledge and Perceived Ability of Recognizing and Treating Panic Attacks

Caitlin Hill, ATS, Chyrsten Gessel, AT, Ed.D, Jaclyn Tate, AT, Ed.D

Department of Athletic Training & Sports Medicine, Marietta College

Master of Athletic Training Research Project

May 2, 2024

Athletic Trainers' Knowledge and Perceived Ability of Recognizing and Treating Panic Attacks

Caitlin Hill, ATS

Marietta College

This thesis has been approved for the Department of Athletic Training and Sports Medicine of Marietta College by:

Jaclyn Tate, Ed.D, AT

Thesis Committee Advisor

Chyrsten Gessel, EdD, AT

Thesis Committee Member

TABLE OF CONTENTS

Abstract

Objective/Context: Mental health is a condition of mental wellness that enables people to manage life's stressors, develop their potential, study and work effectively, and give back to their communities. One mental health condition is anxiety. Anxiety is the expectation of a threat in the future. There are multiple subtypes of anxiety disorders, including panic disorder with or without agoraphobia, generalized anxiety disorder (GAD), social anxiety disorder (SAD), specific phobias, separation anxiety, and panic disorder. This study investigates the relationship between ATs' knowledge and their perceived ability to identify and treat panic attacks.

Design and Setting: Mixed methods, cross sectional survey consisting of 22 questions.

Participants: The study used the NATA survey service and convenience and snowball sampling for participant requirements. This study targeted athletic trainers who are currently certified and practicing clinically in a secondary school or collegiate setting. The study was completed by 86 participants with 54 meeting inclusion criteria. Out of the participants, 59.3% worked in a collegiate setting and 40.7% worked in a secondary school setting. Participants had a wide variety of years having practiced, which 51.9% of participants having practiced for <5 years. Intervention: Participants completed an electronic survey consisting of demographic and Likert style questions to assess perceived ability level in recognizing, treating, and referring for panic attacks. The participants also answer a portion of the survey that assesses knowledge of panic attacks with research form the DSM-5. The survey was developed by the research team. The survey's validity was assessed through a pilot study.

Main Outcome Measures: The primary research question was assessed by analyzing the score of the twelve questions at the survey's end. Participants were graded on these questions to give a

score on knowledge of panic attacks. Descriptive statistics were used to assess the participants perceived ability on panic attacks.

Results and Conclusions: There was no significant relationship between the number of years certified and overall knowledge of panic attacks. There was no significant relationship between gender and perceived ability. There was a significant relationship between perceived ability to treat and overall knowledge of panic attacks. There was no significant relationship between perceived ability to recognize and refer and overall knowledge of panic attacks.

Key Words: *panic attacks, panic disorder, athletic trainers, evidence-based practice*

Athletic Trainers' Knowledge and Perceived Competence in Recognizing and Treating Panic Attacks

Introduction

Athletic trainers (ATs) are healthcare professionals who are mostly found around athletic organizations but can also be found in other settings such as clinics, performing arts, the military, and many more (NATA, 2023). To become an AT, one must complete a rigorous academic program. When the AT curriculum was first developed it did not include any psychology courses or standards. Psychology was first added to the AT education curriculum in the 1970s (Delforge & Behnke, 1999). This change made it required for AT education to include 2 psychology courses (Delforge & Behnke, 1999). Further research into AT curriculum was conducted in 1993 by the National Athletic Training Association (NATA), who completed a study to develop a base of professional skills for ATs; they concluded that one aspect of athletic training education should be focused on psychology/counseling (Roh & Perna, 2000). This further promoted the need for psychology courses and topics in AT education. The Commission on Accreditation of Athletic Training Education (CAATE) guides athletic training curriculum by setting standards for athletic training education programs. There has been a CAATE Standard that involves mental health since at least 2012 (CAATE, 2012). In the recent update for the CAATE standards, Standard 77 states “identify, refer, and give support to patients with behavioral health conditions. Work with other health care professionals to monitor these patients’ treatment, compliance, progress, and readiness to participate” (CAATE, 2022, p. 59), and Standard 94 states “develop and implement specific policies and procedures for the purpose of identifying patients with behavioral health problems and referring patients in crisis to qualified providers” (CAATE,

2022, p. 67). These standards set expectations for AT programs to include topics and courses on behavioral health. This also indicates that ATs should be able to perform each standard to better patient care.

For ATs to provide effective patient care, they must be able to identify suspected mental health conditions or emergencies (Ostrowski et al., 2022). A type of mental health condition is anxiety, which has nearly doubled in prevalence in 18- to 25-year-olds from 2008-2018 (Goodwin et al., 2020). One manifestation of anxiety is panic attacks. This cross-sectional survey study aims to investigate the relationship between athletic trainers' knowledge and their perceived ability to identify and treat panic attacks.

Background

Mental Health

Mental health is a condition of mental wellness that enables people to manage life's stressors, develop their potential, study and work effectively, and give back to their communities (World Health Organization, 2022). According to the National Institute of Mental Health, over 33% of Americans aged 18-25 have some form of mental health condition (National Institute of Mental Health, 2021), making it a prevalent condition healthcare providers must be able to manage. Even though mental health conditions are common, they are often stigmatized, especially in regard to gender. Healthcare providers' unconscious stigmas can also play a role in mental health treatment. Male mental health providers hold a greater stigma when working with mental health patients (Kaitz et al., 2022). Specifically, male providers displayed higher stigmatization for PTSD and depression than female providers (Kaitz et al., 2022). Male providers often consider themselves too objective and emotionally reserved, while female

healthcare workers describe themselves as more nurturing and value relationships (Dysvik & Sommerseth, 2010). Healthcare providers have a responsibility to their patients and should provide care that encompasses all aspects of the injury or condition.

Mental health is an aspect of injury rehabilitation many people do not consider. The psychological impacts of an injury on mental health have increased in recent years. When athletes are first injured, they tend to experience a multitude of negative emotions. As athletes participate in rehabilitation of injuries, they often feel a variety of emotions, both positive and negative. Once the athlete is returned to play, they often have a fear of re-injury that manifests as anxiety (Clement et al., 2015).

Anxiety Disorders

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (American Psychiatric Association, 2013), anxiety is the expectation of a threat in the future. Anxiety is often confused with fear. Fear is the emotional reaction to a perceived or actual immediate threat (American Psychiatric Association, 2013). While these two mental states undoubtedly overlap, they also differ in that anxiety is more frequently linked to tense muscles, alertness in anticipation of danger, and cautious or avoidant actions, whereas fear is more frequently linked to spikes in autonomic arousal required for fight or flight, thoughts of impending danger, and escape behaviors. Anxiety disorder affects 33.7% of the population (Bandelow & Michaelis, 2015), making it one of the most common mental health disorders. There are multiple subtypes of anxiety disorders, including panic disorder with or without agoraphobia, generalized anxiety disorder (GAD), social anxiety disorder (SAD), specific

phobias, separation anxiety, and panic disorder. This research focuses primarily on panic disorder.

Panic disorder is a history of frequent, unanticipated panic attacks (de Jonge et al., 2016). Typically, panic attacks are characterized by a sudden experience of catastrophic fear or anguish along with physiological signs including palpitations, a racing heart, thermal discomfort, and sweating (Johnson et al., 2014). Panic attacks and panic disorders are possibly related to cardiac conditions such as palpitation, arrhythmias, decreased heart rate, cardiomyopathy, and QT interval variability (Caldirola et al., 2016). Panic disorder affects 12.8% of the world's population; however, over 1 in 10 people will experience a panic attack at some point in their life (de Jonge et al., 2016).

Athletic Training and Mental Health

Currently, the NATA only has one consensus statement and no position statements regarding mental health. The consensus statement is a broad statement regarding referrals for generalized mental health conditions and was last updated in 2013 (Neal et al., 2013). The National Collegiate Athletic Association (NCAA) provides broad resources for mental health including fact sheets and best practices, but this research is not specifically for panic attacks (NCAA, 2021). ATs are often the healthcare providers who first come in contact with patients and their mental health conditions. Previous research shows that ATs frequently referred athletes to other healthcare professionals for mental health conditions and were accurate in determining whether psychological symptoms were present or absent (Ostrowski et al., 2022). ATs felt confident using a variety of psychological techniques, such as breathing patterns and distraction,

with injured athletes throughout rehabilitation, however, when asked to apply these techniques in clinical practice, they found it difficult (Ostrowski et al., 2022).

Research in 2015 by Cormier and Zizzi studied ATs ability to manage patients in psychological distress. The study found that ATs were able to identify and refer but struggled to implement treatment strategies. Cormier and Zizzi concluded that students studying athletic training may benefit from adding practical experiences to their psychology courses to help them learn how to handle real-world scenarios with athletes. Further research in 2019 supported ATs ability to identify and refer those with suspected anxiety, panic attacks, depression, suicidal ideation, or eating disorders but found that ATs feel less confident in identifying and referring individuals with suspected psychosis and substance use disorders (Clement & Arvinen-Barrow, 2019).

Overall, there is little research looking specifically at ATs' ability to address panic attacks. A panic attack can be a tricky situation in which emergency medical services usually do not need to be activated, but the condition needs to be addressed. Out of the previously discussed studies, only Cormier and Zizzi specifically asked about panic attacks, but it was one of many conditions addressed in the research. Additionally, all the previous research regarding ATs' ability to assess not only panic attacks but all mental health conditions was conducted before 2020. The overall prevalence of anxiety disorders was shown to increase by around 25.6% during the COVID-19 pandemic (Daly & Robinson, 2021). The increase in anxiety disorders makes it more likely than ever that ATs will treat a patient with panic disorder or panic attacks, making it important to understand their ability to respond appropriately. This study aims to investigate the ability of ATs to identify and treat panic attacks.

Methods

The purpose of this cross-sectional survey study was to investigate the relationship between athletic trainers' knowledge and perceived ability to identify and treat panic attacks. This study was guided by the following research questions.

RQ1: What, if any, relationships exist between the number of years certified as an AT and the AT's knowledge in identifying and treating panic attacks?

RQ2: What, if any, differences exist between an AT's gender and perceived ability to recognize and treat panic attacks?

RQ3: What, if any, relationship exists between ATs' knowledge of panic attacks and their perceived ability to recognize and treat panic attacks?

Research Design

This study utilized a cross-sectional design, which is a type of design for observational research. In a cross-sectional study, the researcher simultaneously assesses the participants' exposures and outcomes (Setia, 2016). In contrast to cohort studies and case-control studies, where participants are chosen based on exposure status or outcome status, participants in a cross-sectional study are only chosen based on the inclusion and exclusion criteria established for the study (Setia, 2016). After choosing the study subjects, the researcher conducts the study to evaluate the exposure and results (Setia, 2016). This study looked at the population of athletic trainers and their exposure to panic attacks. There are rarely any ethical issues with cross-sectional studies because neither the exposure nor the treatment of the subjects is altered (Wang & Cheng, 2020). A cross-sectional design was used because no interventions are being made and

participants provided information regarding their experience in recognizing and providing care for panic attacks. This study was approved by the Marietta College Human Subjects Committee.

Recruitment

Participants were recruited through convenience and snowball sampling. Convenience sampling is frequently employed in clinical and qualitative research. This sampling method chooses clinical cases or participants from a particular location (like a hospital), a database of medical records, an online resource, or a customer membership list (Stratton, 2021). This study utilized convenience sampling through the NATA Research Survey Service, which is a membership database from which individuals meeting inclusion criteria are sampled and recruited for participation in research studies. Participants were also reached through social media. Participants located through personal connections and the NATA were sent an email with the survey's goals and a link to access it (Appendix A). Participants recruited through social media were provided with a link to the survey (Appendix A). Snowball sampling is when the researchers begin with a few initial contacts recruited to participate in the research because they meet the requirements. These initial contacts then forward the research to more contacts who meet the research criteria and may be willing participants, who in turn indicate more possible volunteers, and so forth (Parker et al., 2019). The study also utilized snowball sampling by allowing participants to pass along the survey to other athletic trainers.

To participate in the study, participants had to be BOC-certified athletic trainers practicing in a secondary school or collegiate setting. Participants were excluded from the survey if they did not meet the inclusion criteria previously stated or if they provided AT education on mental health.

Participants

The population of participants was taken from currently practicing ATs in the secondary school and collegiate settings. The survey was sent to a broad population of athletic trainers. To calculate the sample size needed to determine significance, a between subjects t-test was calculated using the G*Power 3.1 computer software. Using a standard deviation of 9.0 from a similar study (Ostrowski et al., 2022), and a standard error of 5%, the output indicated that a sample size of 45 participants was needed to determine significance.

Instrumentation

Data was collected using a self-report survey and a quiz that was developed by the researcher (Appendix B). Participants completed informed consent during the first part of the online survey. The survey continued with a series of multiple-choice questions, which were developed to confirm that participants met inclusion criteria. If the participant met the inclusion criteria, they proceeded to the demographic section; if they did not meet the inclusion criteria, the survey ended. The demographic section collected key information pertaining to the research questions. These demographics included work setting, gender identity, and number of years BOC-certified. The settings offered as a selection were those used by the NATA. For gender identity, participants had the option to enter a gender identity if they did not identify with those listed. The next questions in the survey were used to measure the participants' perceived ability. These questions were based off a similar study conducted in 2022, that assessed ATs confidence and education satisfaction in mental disorders such as anxiety, depression, suicidal ideation, eating disorders, substance use, and psychosis (Ostrowski et al., 2022). The final section of the survey was a quiz to assess the participants' knowledge about panic attacks. The researcher

developed quiz questions using the current DSM-5 (American Psychiatric Association, 2013). The questions were generated in a multiple-choice format to test the participants' knowledge about signs and symptoms of panic attacks, the ATs role in treatment, and proper referral.

The research instrument was reviewed by an expert in psychology and a practicing athletic trainer with research expertise prior to pre-testing. The expert was a clinical psychologist with specialties in the assessment and treatment of adult psychology and sports psychology. The athletic trainer who reviewed the instrument was certified for 10 years, held a doctorate in education, and possessed previous experience in survey development and expertise in research. From this review, three suggestions were made for improvements to the instrument. First, it was suggested that participants be able to write in how many years they have been BOC certified rather than select from a group of year ranges. Second, reviewers recommended that the portion of the survey to assess perceived ability became a separate section with directions to select which statements best align with the participants' views. Finally, reviewers felt that the addition of a scenario question would best assess participants' knowledge regarding referral for panic attacks. These recommended edits were made to the instrument, and it was reviewed again by the same experts. From this final review, one edit was made to change terminology from "physician" to "mental health professional."

Pilot Testing

The finalized survey instrument was pilot tested with BOC-certified ATs practicing in the collegiate and secondary school settings; these ATs were be excluded from data collection. Pilot participants were asked to provide feedback on the quality, wording, and ease of

completing the survey and quiz. The email sent to the pilot group consisted of information regarding the purpose of the survey, why ATs should participate, and inclusion criteria.

Feedback from the pilot survey consisted of spelling and grammar mistakes, improvements in wording for questions 6 and 19, and the suggestion to improve distractor options for Question 19 to make the correct answer less obvious. From these suggestions, spelling and grammar were corrected. Question 6 was reworded to exclude ATs who teach any information on mental health, not just specifically a mental health class. The wording for Question 19 was changed to clarify that the answer should be based on the long-term intervention for the scenario. Finally, the option of 'PNF stretching' for Question 19 was changed to 'stretching'.

Data Collection Procedures

Athletic trainers were recruited using the methods previously described. Recruitment began on December 4th, 2023. Participants had eight weeks from initial receipt of recruitment materials to complete the survey. Reminder emails were sent to participants who received the initial recruitment email bi-weekly, as well as a bi-weekly social media post to remind participants.

The link provided in the email and social media post took participants to an informed consent form. Participants attested to informed consent by clicking to proceed to the survey and completing it. The survey began with inclusion questions. Using the branching feature, participants were asked to attest to meeting the inclusion criteria using questions 1-8 of the survey (see Appendix B). If a participant's answers did not coincide with inclusion criteria, they were taken to the end of the survey and excluded from further participation. If they attested to

meeting inclusion criteria, they proceeded to question 9, which marked the beginning of data collection relevant to the research questions and purpose. At the end of the survey, participants were asked to forward the survey to their personal athletic training contacts who work in the collegiate and/or secondary school setting. Upon conclusion of data collection, the answers were exported to a spreadsheet. The data was then coded, organized, and cleaned to prepare for data analysis.

Data Analysis

Once the data was coded into an Excel sheet and entered into JASP 0.14.1 computer software, statistical tests were used to analyze the relationships presented in the research questions. Coding consisted of each question being assigned a variable name, and the variable type and length was recorded. The answers to the question were assigned a corresponding number that was used to incorporate the data into computer software. For example, when coding for perceived ability, strongly agree was coded as a "1," agree was coded as a "2," disagree was coded as a "3," and strongly disagree was coded as a "4." The knowledge quiz section of the survey was graded to determine a score for the participant; this score was used in data analysis. Correct answers were coded as "1" while incorrect answers were coded as "2." The lower the score on the knowledge section, the more correct answers there were.

Three statistical analyses were used to answer research questions. A Pearson's product-moment correlation was used to assess if there is a significant relationship between years of certification and knowledge (Jacobsen, 2017). An independent t-test was used to test if there is a significant difference between genders' perceived abilities (Jacobsen, 2017). Finally, a Pearson's

product-moment correlation was used to test if there is a significant relationship between knowledge and perceived ability (Jacobsen, 2017).

Results

The purpose of this cross-sectional study was to assess the perceived ability and knowledge that athletic trainers have regarding management of panic attacks. The following paragraphs will discuss the results of the study including the validity of the instrument, preparation of the data, and evaluation of the data.

Descriptive Statistics

The survey was completed by 86 people, but only 54 met inclusion criteria. Thirty-two of the participants were excluded because they either did not work in a secondary school or collegiate setting, were not currently clinically practicing, or taught classes about mental health. Of the 54 eligible participants, 5 (9.3%) were male, 49 (90.7%) were female (Figure 1.), 32 (59.3%) worked in the collegiate setting, and 22 (40.7%) worked in a secondary school setting. Participants had been certified for 8.1 years $\pm$ 6.0 years on average with a range of less than 1 year to over 25 years of certification (Figure 2.). Using the G*Power 3.1 computer software, a standard deviation of 9.0 from a similar study (Ostrowski et al., 2022), and a standard error of 5%, the output indicated that a sample size of 45 participants was needed to determine significance. The number of participants exceeded 45, therefore power was met.

The data was analyzed using the JASP 0.14.1 software. Prior to analysis, data was coded and stored in a password protected excel file.

Figure 1

Participants Gender

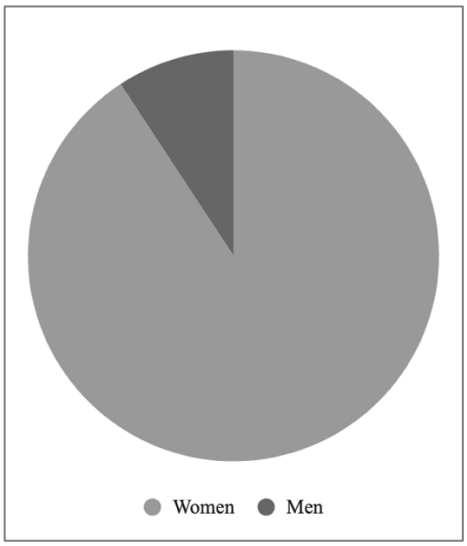
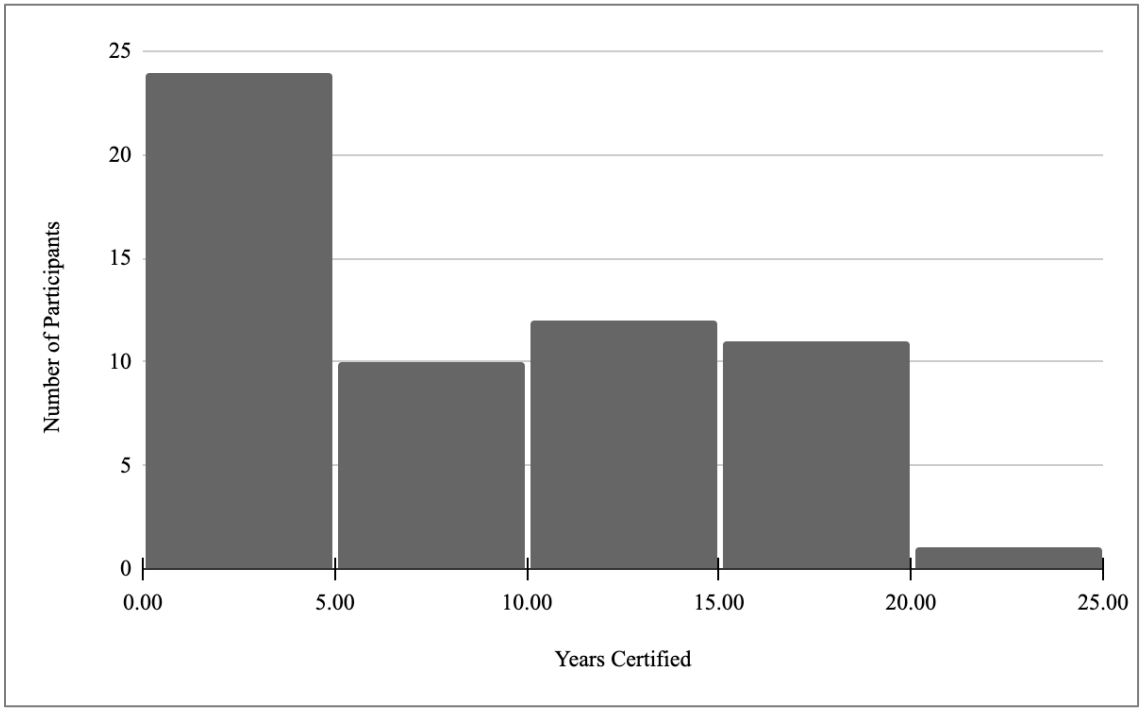


Figure 2

Participants Years of Certification



Validity

The survey was piloted by sending the survey to BOC-certified athletic trainers practicing in a secondary school or collegiate setting. Feedback from the pilot consisted of spelling and grammar mistakes, improvements in wording for two questions, and the suggestion to improve distractor options for one question to make the correct answer less obvious. After these changes were made, the instrument was proven valid by the pilot study participants and no additional changes were made.

Data Preparation

The survey data was collected from NATA members via the NATA research survey service, direct invitation of colleagues and professional connections via email, and through social media posts on LinkedIn. The survey was open on Qualtrics from January 4, 2024, through February 29th, 2024. Data collected from the NATA research service was collected and stored through Qualtrics, while data collected through convenience sampling and social media were collected through Microsoft Forms. Upon completion of data collection, both files were combined into one Microsoft EXCEL spreadsheet. The raw data was then coded within Microsoft EXCEL. This data was imported into JASP (version 0.14.1) for statistical analysis. At each step of the process the data was protected as a password protected file.

Research Question 1: Years of Certification and Knowledge

Research question one determined if there was a significant correlation between the number of years certified as an athletic trainer (AT) and knowledge of panic attacks. Knowledge was measured by a quiz and the overall score was used in the analysis. The knowledge quiz consisted of 12 questions including one select all that apply. For every selection that was correct,

it was coded as a 1. For every selection that was incorrect, it was coded as a 2. The best score possible on the quiz was 17 and the worst score possible was 34. The average overall score for the knowledge section was 22.5.

RQ1: What, if any, relationship exists between the number of years certified as an AT and the AT's knowledge in identifying and treating panic attacks?

H_1: There is a significant relationship between the number of years certified as an AT and the AT's knowledge in identifying and treating panic attacks.

A Pearson's correlation was used to analyze the correlation between the number of years certified as an athletic trainer (AT) and knowledge of panic attacks. A Pearson's correlation does not show a significant correlation between years certified and panic attack knowledge ($r(56) = 0.094$, $p = 0.496$). The assumption of normality was not violated because the Shapiro-Wilk p value was 0.543, which is larger than the 0.05 to prove normality. The assumption of no outliers was met as the data has a wide range and no value is considered an outlier. Based on the analysis, the research hypothesis was rejected.

Research Question 2: Gender and Perceived Ability

An independent t-test was used to determine if there was a significant difference in AT's perceived ability to recognize, treat, and refer for panic attacks among genders. Three t-tests were used to assess each aspect of perceived ability compared to gender.

RQ2: What, if any, differences exist between an ATs gender and perceived ability to recognize and treat panic attacks?

H_1: There is a significant difference between an ATs gender and perceived ability to recognize and treat panic attacks.

An independent t-test showed that there was no significant difference in perceived ability to recognize panic attacks among genders ($t(56) = 1.044$, $p = 0.301$). An independent t-test showed that there was no significant difference in perceived ability to refer for panic attacks among genders ($t(56) = 0.618$, $p = 0.539$). An independent t-test showed that there is no significant difference in perceived ability to implement treatment for panic attacks among genders ($t(56) = 1.256$, $p = 0.214$). The assumption of normality was violated because the Shapiro-Wilk p value was < 0.001, which is smaller than the 0.05 value to prove normality. The assumption of equality of variances was also violated because Levene's p-value was less than 0.05. Based on the analysis, the research hypothesis was rejected.

Research Question 3: Perceived Ability and Knowledge

A Pearson's correlation was used to determine if there was a relationship between ATs perceived ability and knowledge regarding panic attacks. The overall quiz score was compared to each aspect of perceived ability.

RQ3: What, if any, relationship exists between AT's knowledge of panic attacks and their perceived ability to recognize and treat panic attacks?

H_1: There is a relationship between AT's knowledge of panic attacks and their perceived ability to recognize and treat panic attacks.

A Pearson's correlation showed no significant correlation between perceived ability to recognize panic attacks and panic attack knowledge ($r(56) = 0.156$, $p = 0.255$). A Pearson's correlation showed a significant correlation between perceived ability to implement treatment for panic attacks and panic attack knowledge ($r(56) = 0.278$, $p = 0.04$). A Pearson's correlation showed no significant correlation between perceived ability to refer for panic attacks and panic

attack knowledge ($r(56) = 0.232$, $p = 0.088$). The assumption of normality was violated because the Shapiro-Wilk p value was < 0.0001, which is smaller than the 0.05 to prove normality. The assumption of no outliers was met as the data has a wide range and no value is considered an outlier. Based on the analyses, two out of three of the aspects of perceived ability showed no significant correlation with score on the knowledge quiz. This indicates that the research hypothesis was rejected.

Discussion

The goal of this cross-sectional survey study was to investigate the relationship between athletic trainers' knowledge and perceived ability to identify and treat panic attacks. This study looked at the variables of the number of years of certification, gender, perceived ability to manage panic attacks, and formal knowledge of panic attacks. Knowledge and years of certification were compared to determine if there has been a possible change in AT education and general knowledge. Gender and perceived ability were compared to determine if gender impacted the athletic trainer's ability to manage panic attacks. Finally, the perceived ability to identify and treat panic attacks was compared to knowledge to determine if AT confidence comes from knowledge.

Research Question 1

There was no significant relationship between the number of years an AT has been certified and their level of knowledge on panic attacks. The longest an AT in the study had been certified was 25 years, while the shortest time an AT has been certified was less than a year. Out of the 54 participants, the average score for overall knowledge was 22.5 (80%), with the best possible score being a 17 and the worst score being a 34, which is low for this being a CAATE

standard for AT education since at least 2012. This could mean that there is a lack of overall formal and/or continuing education regarding panic attacks and panic disorder regardless of years of athletic training certification.

A similar study evaluated frequency, confidence, and educational satisfaction with mental illness recognition and referral among certified athletic trainers (Ostrowski et al., 2022), and found that anxiety was the most frequently recognized condition requiring referral. Most respondents in the Ostrowski et al. study felt moderately or extremely confident in managing patients with anxiety and panic disorder. The majority of participants felt dissatisfied or only slightly satisfied with their education related to mental health. It was also alarming the number of individuals who did not have formal education regarding mental health topics despite a previous CAATE Standard from 2012 (identify, refer, and give support to patients with behavioral health conditions. Work with other healthcare professionals to monitor these patients' treatment, compliance, progress, and readiness to participate) and at least 2 psychology courses being part of all AT curriculum since the 1970s. All participants in the Ostrowski et al. study as well as this research should have had education on psychology as it was first added to AT curriculum in the 1970's (Delforge & Behnke, 1999).

While this research study did not find a significant correlation between years of certification and AT knowledge, the Ostrowski et al. study concluded that ATs with fewer years of clinical experience did express higher confidence in mental health recognition and referral when compared to ATs who had completed professional programs long ago. This could possibly indicate that more recent education programs may be better at providing knowledge for mental health. Overall, the Ostrowski et al. study and this study both researched ATs ability and

knowledge regarding one or multiple mental health conditions and both resulted in similar findings regarding an increased need for formal AT education and professional development in the area of mental health.

Research Question 2

There was no significant relationship between an athletic trainer's gender and their perceived ability to recognize, treat, and refer patients suffering panic attacks. Out of the 54 total participants, 49 of them were female and 5 of them were male. The data has a bias toward females as there were considerably more female participants. There was also no gender-neutral or transgender ATs in the study. Even though the analysis proved that there was no significant relationship, men did appear to rate themselves as having a lower perceived ability when compared to women.

Gender may influence perspective on panic attacks and mental health. Women more often describe themselves as having a greater caring quality than men and place more importance on relationships. Men tend to distance themselves emotionally and look at situations objectively (Dysvik & Sommerseth, 2010). Kaitz et al. (2022) examined the influence of provider gender on mental health stigma and found male providers holding more stigmatization toward patients with depression than female providers, but the difference was not significant.

Research Question 3

There was only a significant relationship between perceived ability to treat panic attacks and participants' knowledge regarding panic attacks. There was no significant relationship between perceived ability to identify and refer for panic attacks and participants knowledge regarding panic attacks. This indicates that the amount of formal knowledge on panic attacks

does not necessarily translate to an ATs perceived ability to effectively recognize and refer for panic attacks. This can also be interpreted to indicate that an AT who has a high perceived ability to identify and refer for panic attacks does not necessarily mean that there is competent knowledge to support the perception. There is data to show that ATs who feel confident in their ability to treat panic attacks have accurate knowledge to support treatment.

In clinical settings, ATs are often the first line of care for any medical condition, including conditions related to mental health. ATs must be able to recognize the warning signs and symptoms of these conditions to effectively intervene, refer patients for suspected conditions, and identify related mental health emergencies (Ostrowski et al., 2022). Panic attacks are a subtype of anxiety that has been linked to tense muscles, alertness in anticipation of danger, and cautious or avoidant actions (American Psychiatric Association, 2013). These physical symptoms can lead to a cycle of panic and/or misinterpretation of what the patient is experiencing. There is even a possible link between panic disorder and cardiac conditions, such as palpitations, cardiomyopathy, and QT interval variability (Caldirola et al., 2016). ATs should be able to recognize when a referral for panic attacks is necessary so patients can get advanced treatment and screening for possible cardiac conditions. The results of this study have yielded a lack of knowledge in managing panic attacks, which can put athletes at risk because panic attacks that are not identified and treated efficiently can lead to other health conditions, such as cardiac conditions.

To improve overall mental health knowledge, ATs have the possibility of becoming mental health first aid certified. The Mental Health First Aid certification is similar to CPR/AED/BLS trainings, meaning that it is a series of lectures over at least 2 days that finish

with a test and certification. Mental health first aid training can help improve a healthcare provider's ability to identify, treat, and refer for mental health conditions. Athletic trainers can also use the resources provided by the National Collegiate Athletics Association (NCAA). These resources include fact sheets and best practices. These resources are not geared specifically for athletic training but can be helpful to contribute to knowledge surrounding mental health. It is also important to ATs to establish a network to help them effectively manage mental health conditions. ATs can use fellow ATs but should also establish a connection with a mental health professional that they can refer to.

Limitations

Limitations of this study included a small sample size, uneven distribution of gender, self-report instrument, electronic access, and lack of reliability. Out of 86 total participants who began the survey only 54 fully completed it because they either did not meet inclusion criteria or chose not to complete the survey. Out of those 54 participants that did complete the survey, only 5 were male and none identified as transgender or non-binary, this leads to a skewed distribution and underrepresentation. Although power was met in the study, there was still a small sample size of only 54 participants to represent the entire population of ATs in the secondary school and collegiate settings. The data was a self-reported measure on an electronic device. Potential participants may not have had access to such electronic devices or understand how to complete the survey. The reliability of the knowledge quiz was not tested as the study was only run once and the instrument was created specifically for this research.

Conclusion

The purpose of this cross-sectional survey study was to investigate the relationship between athletic trainers' knowledge and perceived ability to identify and treat panic attacks. Additional variables including the impact of gender on perceived ability to identify and treat panic attacks and years of certifications impact on knowledge were also investigated. The results yielded no significant findings for research questions one and two. For research question three, out of the three aspects of perceived ability that was measured, there was only a significant relationship between ATs perceived ability to treat panic attacks and ATs knowledge. There is currently no requirement for continuing education credits to include mental health for certified athletic trainers and despite previous and current CAATE education standards including mental health, there still may be a lack of mental health education in AT programs and continuing education.

Contributions to Literature

This study contributed to the growing research on mental health, specifically athletic trainers and mental health. Previous research by Ostrowski et al. (2022), used a cross-sectional survey to research ATs frequency, confidence, and educational satisfaction with mental illness recognition and referral among certified athletic trainers. Cormier and Zizzi (2015) used a cross-sectional survey to assess ATs ability to recognize and manage athletes in psychological distress. Both of these studies emphasized the importance of continued education about mental health conditions.

This study focused specifically on panic attacks and panic disorder. This study will impact athletic training programs, the NATA Professional Education Committee (PEC), as well

as any state and local committees that focus on athletic training education by calling to the importance of mental health education and lack of ATs knowledge on panic attacks. This research supports the importance of programs adding content to their curriculum in both the didactic and clinical format, supports the addition of behavioral health in the CAATE standards, and encourages the addition of more continuing education opportunities regarding panic attack identification, treatment, and referral.

Clinical Implications

The only significant finding of the study was a relationship between ATs perceived ability to treat panic attacks and panic attack knowledge, however, it is suggesting that there is a lack of formal knowledge regarding panic attacks. With the recent additions of two standards about behavioral health in the CAATE accreditation standards, this study emphasizes the importance of behavioral health education. Athletic trainers are at times the first line of care for many patients. Being adequately trained and informed on mental health conditions will enable athletic trainers to be able to identify and refer patients with behavioral health conditions. As a healthcare provider, athletic trainers are required to complete continuing education units. Educational opportunities should include mental health to allow athletic trainers to stay up to date on best practice for managing mental health conditions. Athletic trainers can also get mental health first aid certified to better prepare them for mental health emergencies. Athletic trainers can use information regarding panic attacks and other mental health conditions to develop mental health emergency action plans that can be reviewed annually and updated depending on future research. Athletic trainers being able to identify and effectively manage

panic attacks is important as they can affect daily life and could possibly be associated with cardiac conditions.

Future Research

The research surrounding panic attacks and panic disorders identification and treatment amongst athletic trainers is limited. With the addition of a second CAATE standard in 2020 that focused on behavioral health, it will be important for programs to identify opportunities to include additional mental health education into their didactic and clinical curriculum. Future research should include the implementation of mental health education in athletic training programs and the ability to translate that data to be able to recognize, treat, and refer for mental health conditions in clinical practice. In addition to athletic training education programs, there should also be easier access for ATs to expand their knowledge on mental health throughout their careers. Future research should look to replicate the methods of this study with increasing the sample size with the goal of more equal representation of genders to confirm or reject trends that were identified in genders perceived ability to recognize, treat, and refer for panic attacks.

Summary

Athletic trainers are vital to the health care of patients in all settings. Athletic trainers can at times be the first line of medical care or the only medical care that an athlete or patient will receive. This study has contributed to the increasing research on mental health and athletic training. The study supports previous research findings from Ostrowski et al. and Cormier and Zizzi that concluded a need for an increase in formal education and continuing education on mental health in the athletic training profession to overall provide better patients care regarding mental health conditions. Despite 2012 and 2020 CAATE Standards requiring education on

managing mental health conditions, there is an increased need for more education in colleges/universities and beyond graduation. Increased education allows athletic trainers to have more knowledge and be better prepared to help and provide the best care possible for patients going through a mental health condition.

References

American Psychiatric Association, & American Psychiatric Association (Eds.). (2013). *Diagnostic and statistical manual of mental disorders: DSM-5* (5th ed). American Psychiatric Association.

Bandelow, B., & Michaelis, S. (2015). Epidemiology of anxiety disorders in the 21st century. *Dialogues in Clinical Neuroscience*, *17*(3), 327–335.

Caldirola, D., Schruers, K. R., Nardi, A. E., De Berardis, D., Fornaro, M., & Perna, G. (2016). Is there cardiac risk in panic disorder? An updated systematic review. *Journal of Affective Disorders*, *194*, 38–49. https://doi.org/10.1016/j.jad.2016.01.003

Charan, J., & Biswas, T. (2013). How to calculate sample size for different study designs in medical research? *Indian Journal of Psychological Medicine*, *35*(2), 121–126. https://doi.org/10.4103/0253-7176.116232

Clement, D., & Arvinen-Barrow, M. (2019). Athletic trainers' views and experiences of discussing psychosocial and mental health issues with athletes: An exploratory study. *Athletic Training & Sports Health Care*, *11*(5), 213–223. https://doi.org/10.3928/19425864-20181002-01

Clement, D., Arvinen-Barrow, M., & Fetty, T. (2015). Psychosocial responses during different phases of sport-injury rehabilitation: A Qualitative Study. *Journal of Athletic Training*, *50*(1), 95–104. https://doi.org/10.4085/1062-6050-49.3.52

Commission of Accreditation for Athletic Training Education. (2012). *Program Standards*. https://caate.net/standards

Commission of Accreditation for Athletic Training Education. (2022). *Program Standards*. https://caate.net/standards

Cormier, M. L., & Zizzi, S. J. (2015). Athletic trainers' skills in identifying and managing athletes experiencing psychological distress. *Journal of Athletic Training*, *50*(12), 1267–1276. https://doi.org/10.4085/1062-6050-50.12.02

Daly, M., & Robinson, E. (2021). Psychological distress and adaptation to the COVID-19 crisis in the United States. *Journal of Psychiatric Research*, *136*, 603–609. https://doi.org/10.1016/j.jpsychires.2020.10.035

de Jonge, P., Roest, A. M., Lim, C. C. W., Florescu, S. E., Bromet, E., Stein, D., Harris, M., Nakov, V., Caldas-de-Almeida, J. M., Levinson, D., Al-Hamzawi, A. O., Haro, J. M., Viana, M. C., Borges, G., O'Neill, S., de Girolamo, G., Demyttenaere, K., Gureje, O., Iwata, N., … Scott, K. M. (2016). Cross-national epidemiology of panic disorder andpPanic attacks in the world mental health surveys. *Depression and Anxiety*, *33*(12), 1155–1177. https://doi.org/10.1002/da.22572

Dysvik, E., & Sommerseth, R. (2010). A man could never do what women can do: Mental health care and the significance of gender. *Patient Preference and Adherence*, *4*, 77–86. https://doi.org/10.2147/PPA.S9103

Goodwin, R. D., Weinberger, A. H., Kim, J. H., Wu, M., & Galea, S. (2020). Trends in anxiety among adults in the United States, 2008–2018: Rapid increases among young adults. *Journal of Psychiatric Research*, *130*, 441–446. https://doi.org/10.1016/j.jpsychires.2020.08.014

Jacobsen, K. H. (2017). *Introduction to health research methods: A practical guide* (Second edition). Jones & Bartlett Learning.

Johnson, P. L., Federici, L. M., & Shekhar, A. (2014). Etiology, triggers and neurochemical circuits associated with unexpected, expected, and laboratory-induced panic attacks. *Neuroscience & Biobehavioral Reviews*, *46*, 429–454. https://doi.org/10.1016/j.neubiorev.2014.07.027

Kaitz, J. E., Steinhilber, K. M., & Harris, J. I. (2022). Influence of provider gender on mental health stigma. *Community Mental Health Journal*, *58*(3), 536–540. https://doi.org/10.1007/s10597-021-00849-y

Mental health. (2022, June 17). World Health Organization. https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response

Mental Illness. (2021). National Institute of Mental Health. https://www.nimh.nih.gov/health/statistics/mental-illness

National Athletic Training Association. (2023). *Athletic Training*. National Athletic Training Association. https://www.nata.org/about/athletic-training

Neal, T. L., Diamond, A. B., Goldman, S., Klossner, D., Morse, E. D., Pajak, D. E., Putukian, M., Quandt, E. F., Sullivan, J. P., Wallack, C., & Welzant, V. (2013). Inter-association recommendations for developing a plan to recognize and refer student-athletes with psychological concerns at the collegiate level: An executive summary of a consensus statement. *Journal of Athletic Training*, *48*(5), 716–720. https://doi.org/10.4085/1062-6050-48.4.13

Ostrowski, J. L., Durics, B., Vallorosi, J., Gray, A. M., & Payne, E. (2022). Frequency of, confidence in, and educational satisfaction with mental illness recognition and referral among certified athletic trainers. *Journal of Athletic Training*, *58*(1), 71–78. https://doi.org/10.4085/1062-6050-0606.21

Parker, C., Scott, S., & Geddes, A. (2019). Snowball sampling. *SAGE Research Methods Foundations*. http://methods.sagepub.com/foundations/snowball-sampling

Raju, N. N., Naga Pavan Kumar, K. S. V. R., & Nihal, G. (2023). Clinical practice guidelines for assessment and management of anxiety and panic disorders in emergency setting. *Indian Journal of Psychiatry*, *65*(2), 181–185. https://doi.org/10.4103/indianjpsychiatry.indianjpsychiatry_489_22

Roh, J. L. C., & Perna, F. M. (2000). Psychology/counseling: A universal competency in athletic training. *Journal of Athletic Training*, *35*(4), 458–465.

Setia, M. S. (2016). Methodology Series Module 3: Cross-sectional Studies. *Indian Journal of Dermatology*, *61*(3), 261–264. https://doi.org/10.4103/0019-5154.182410

Stratton, S. J. (2021). Population research: Convenience sampling strategies. *Prehospital and Disaster Medicine*, *36*(4), 373–374. https://doi.org/10.1017/S1049023X21000649

Wang, X., & Cheng, Z. (2020). Cross-sectional studies: Strengths, weaknesses, and recommendations. *Chest*, *158*(1, Supplement), S65–S71. https://doi.org/10.1016/j.chest.2020.03.012

Appendix A: Recruitment Materials

Recruitment Email

Hello,

My name is Caitlin Hill, and I am currently working on my graduate research project at Marietta College and need your help. I am reaching out to you to participate in my study.

The goal of this study is to assess athletic trainers' knowledge and perceived ability in recognizing and treating panic attacks.

Panic attack prevalence is increasing, and athletic trainers are often the ones who have first access to an athlete who is experiencing one. Assessing athletic trainers' knowledge and perceived ability in recognizing and treating panic attacks can help establish if additional education on the topic is needed to improve patient care.

Why should you participate?

- Help contribute to the growing research on mental health and panic attacks in athletic training settings.

Who can participate?

Board Certified Athletic Trainers who are currently practicing in the secondary school or collegiate settings

Who cannot participate?

- Individuals who are not board-certified athletic trainers
- ATs who currently educate future or current ATs on mental health topics.

If you fit these requirements and are interested in helping, please use the link below to access the survey.

https://forms.office.com/Pages/ResponsePage.aspx?id=ZRtUTlH-G02VLQDFkqJ-7os6g4GJ46xNqo531HPxwOFUNUE0R0g1N0U5U1lMWExGUUw1UEZLWUVENi4u

If you have any questions regarding my study, you can contact me via email ceh002@marietta.edu. You may also contact my mentor, Dr. Chyrsten Gessel (clr005@marietta.edu)

Thank you for your consideration. Sincerely

Caitlin Hill

Athletic Training Student

Marietta College Master of Athletic Training Program

Social Media Post

Appendix B: Survey Instrument

ATs Knowledge and Perceived Ability to Recognize and Treat Panic Attacks

The purpose of this survey is to measure athletic trainer knowledge regarding panic attacks and their perceived ability to recognize and treat panic attacks. This data will be used as research to help further the athletic training profession regarding mental heath treatment. All data collected will be confidential and used for research purposed only.

The survey will take 10–15 minutes to complete.

* Required

Informed Consent

The purpose of this study is to assess athletic trainers knowledge and perceived ability to recognize and treat panic attacks. The benefits of completing the survey include helping provide valuable research regarding panic attacks. The survey will take no more than 15 minutes to complete. All data will be password protected, and no identifiable information will be collected. All data will be used for research purposes only. There is no risk to the participants completing the survey. Participation is completely voluntary, and there is no penalty for refusal to participate. Refusal of participation at any time will occur without penalty. Upon selecting yes, you will be redirected to the survey. This study has been approved by Marietta College Human Subjects Committee: IRB (HSC) Protocol #11152023.

Questions or concerns can be directed to Researcher Caitlin Hill (ceh002@marietta.edu), Committee Chair Dr. Chyrsten Gessel (clr005@marietta.edu) or Chair of Marietta College Human Subjects Committee Dr. Alicia Doerflinger (ad001@marietta.edu).

Inclusion and Demographic Questions

Please select the answers that best describe you

2. Are you currently a certified athletic trainer *

- ◯ Yes
- ◯ No

3. How would you currently describe your current employment setting *

- ◯ College/University
- ◯ Secondary School
- ◯ Clinic or Hospital
- ◯ Professional Sport
- ◯ Emerging Setting (Military, Performing Arts, Public Safety, Occupational Health)
- ◯ Other

4. Are you currently a clinically practicing athletic trainer? *

- ◯ Yes
- ◯ No

5. Are you split appointment? Meaning are you contracted to practice clinically and in an academic setting? *

- ◯ Yes
- ◯ No

6. If you teach academically, do you teach any classes or units on mental health? *

- ◯ Yes
- ◯ No

7. What is the highest level of degree you have earned? *

- ◯ Bachelors
- ◯ Masters
- ◯ Clinical Doctorate (DAT)
- ◯ Academic Doctorate (Phd, EdD)

8. How long have you been a certified athletic trainer? Please round to the nearest full year *

9. What is your gender identity? *

- ◯ Woman
- ◯ Man
- ◯ Non-binary
- ◯ Trans-man
- ◯ Trans-woman
- ◯ Not listed

Percieved Ability

10. For the following statements, please select your level of agreement. *

	Strongly Agree	Agree	Disagree	Strongly Disagree
I am able to recognize when a patient, athlete, or individual under my care is suffering from a panic attack.	◯	◯	◯	◯
I am able to implement the appropriate treatment to a person suffering a panic attack.	◯	◯	◯	◯
I am able to recognize when a patient, athlete, or individual under my care needs to be referred for treatment or management of panic attacks.	◯	◯	◯	◯

Knowledge Quiz

The following questions will be used to assess your knowledge about panic attacks.

Please select the answer that you believe is most correct

11. How does the DSM-5 define a panic attack? *

- ◯ A surge of intense fear or anxiety
- ◯ A feeling of anxiety that results in trouble breathing
- ◯ A triggered event that leads to a feeling of overwhelming anxiety
- ◯ A sudden feeling of overwhelming and debilitating stress

12. Which of the following is **NOT** a symptom that usually occurs with panic attakcs? *

- ◯ Sweating
- ◯ Parasthesia
- ◯ Depersonalization
- ◯ Headache

13. Which of the following statements is **FALSE** *

- ◯ There can be a genetic component to developing panic attacks
- ◯ Panic attacks often occur with a comorbid mental disorder
- ◯ It is common for athletes to experience abdominal discomfort during a panic attack
- ◯ It is common for athletes to faint or lose consciousness during a panic attack

14. Panic attacks can be expected or unexpected *

- ◯ True
- ◯ False

15. What is the mean age of onset for panic attacks? *

- ◯ 14-16 years old
- ◯ 17-18 years old
- ◯ 19-21 years old
- ◯ 22-23 years old
- ◯ 24+ years old

16. The clinical symptoms of panic attacks vary between genders *

- ◯ True
- ◯ False

17. According to the DSM-5, what is a risk factor for panic attacks? *

- ◯ Alcohol
- ◯ Smoking
- ◯ Obesity
- ◯ Diabetes

18. Panic attacks usually have more psychological symptoms than physical symptoms *

- ◯ True
- ◯ False

19. Which of the following is a method to help a patient who is currently having a panic attack? *

- ◯ Give them space to handle it on their own
- ◯ Explain what is happening to them
- ◯ Provide the patient with an inhaler
- ◯ Encourage the patient to resume whatever activity they were doing prior to the attack

20. Which of the following is **NOT** a strategy to help calm a patient who is experiencing a panic attack? *

- ◯ Stretching
- ◯ Guided Imagery
- ◯ Breathing Exercises
- ◯ Distracting the Patient

21. What can be done to help a patient who has a history of panic attacks? Select all that apply *

- ☐ Reduce caffeine intake
- ☐ Refer to a physician for medication
- ☐ Encourage patient to partake in new activities
- ☐ Promote stress-reducing techniques
- ☐ Encourage better sleep habits
- ☐ Increase caffeine intake

22. What is the most appropriate long term plan of action for the following scenario?

An athlete comes to you during practice saying she can't breathe and is having a panic attack. She has been having them more frequently and they have been starting to affect her daily life. *

- ◯ Have her return to practice
- ◯ Recommend seeing a medical or mental health professional
- ◯ Recommend that the athlete talks to her parents and friends about the panic attacks
- ◯ Recommend the athlete talks to her professors
- ◯ Teach her breathing techniques to help calm her down

Appendix C: Informed Consent Document

Section 1 ...

Informed Consent

The purpose of this study is to assess athletic trainers knowledge and perceived ability to recognize and treat panic attacks. The benefits of completing the survey include helping provide valuable research regarding panic attacks. The survey will take no more than 15 minutes to complete. All data will be password protected, and no identifiable information will be collected. All data will be used for research purposes only. There is no risk to the participants completing the survey. Participation is completely voluntary, and there is no penalty for refusal to participate. Refusal of participation at any time will occur without penalty. Upon selecting yes, you will be redirected to the survey. This study has been approved by Marietta College Human Subjects Committee: IRB (HSC) Protocol #11152023.

Questions or concerns can be directed to Researcher Caitlin Hill (ceh002@marietta.edu), Committee Chair Dr. Chyrsten Gessel (clr005@marietta.edu) or Chair of Marietta College Human Subjects Committee Dr. Alicia Doerflinger (ad001@marietta.edu).

1. By selecting yes, you are stating that you have read the informed consent document and are willing to continue to participate in the study

- ◯ Yes
- ◯ No