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Psychological Aspects of Gymnastics as Perceived by Athletic Trainers

Allison McDavitt
Bowling Green State University

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PSYCHOLOGICAL ASPECTS OF GYMNASTICS AS PERCEIVED BY ATHLETIC TRAINERS

Allison McDavitt

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Project Advisor

Matthew Kutz, Ph. D.

Second Reader

Nancy Spencer, Ph. D.

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Abstract

Context: Gymnastics is known for high-risk skills, intense competition settings, and a constant pressures to stay fit (White & Bennie, 2015). It is important for the Athletic Trainers' (ATs) to take this into consideration when determining the best treatment plans for gymnasts who present with psychological symptoms (i.e., eating disorders, mental health disorders). **Objective:** To explore ATs' experiences working with collegiate gymnasts and their perceptions on their role in treating athletes with psychological symptoms. **Design:** Mixed methods, non-experimental exploratory design. **Participants:** ATs who are active members of the National Athletic Trainers' Association. 64% of respondents were female, 30% male. 43% were between the ages of 20-30 years old. 28% had more than 14 years of experience as an AT. A majority (64%) reported having their master's degree and 14% have a doctorate degree and 32% of respondents worked directly with a gymnastics team. **Data Collection & Analysis:** Online survey was created to gather demographic information on respondents as well as insights into experiences of working with gymnasts. Cronbach coefficient α and item analysis were used to explore internal consistency of two sections of the survey instrument. Independent-samples *t*-tests and One-way ANOVA were used to determine differences between respondents. Descriptive statistics and central tendency were calculated. Open-ended question responses were coded and analyzed into initial themes before being further analyzed. **Results:** Forty-seven surveys were completed. For the *Confidence & Responsibility* section of the survey instrument Cronbach coefficient was $\alpha = 0.79$ with an item analysis that ranged from $\alpha = 0.75$ - 0.82 . For the *Observed Psychological Symptoms* section the Cronbach coefficient was $\alpha = 0.96$ with an item analysis ranging from 0.961 - 0.966 . Independent samples *t*-tests found that female participants detected depression due to weight gain, unwillingness to be patient in rehabilitation, and concerns about disappointing others more often in their athletes than male participants. One-way ANOVAs revealed that ATs with a clinical doctorate believed that it is their responsibility to recognize and treat athletes with mental health disorders were greater than 3.29 ± 1.15 ($F_{(3,31)} = 3.37$, $p=0.028$). They also reported higher confidence levels in approaching athletes with eating disorders compared to 4.03 ± 0.66 ($F_{(3,31)} = 3.96$, $p=0.015$). ATs emphasized the "team approach" when treating athletes with mental health disorders. ATs believe that it is their responsibility to recognize the signs and symptoms associated with various psychological disorders and then refer athletes to an expert in the field to provide the most effective care. **Conclusion:** Education should prepare ATs to detect symptoms of a psychological disorders and provide informational and social support to athletes. Results from this study stress the need for written referral protocols to sport psychologists, dieticians and other specialists to provide athletes with holistic care.

PSYCHOLOGICAL ASPECTS OF GYMNASTICS AS PERCEIVED BY ATHLETIC TRAINERS

INTRODUCTION

Gymnastics can be a source of fear for young athletes. It can be challenging and even unsafe and stresses feelings of intense pressure to succeed, and embarrassment of poor performance in a competition (White & Bennie, 2015). Because gymnasts are often exposed to these stressors, it has been argued that these are opportunities to develop psychological skills and characteristics that can be translated into behaviors that may be useful throughout the athlete's lifetime (White & Bennie, 2015). For example, gymnastics can aid in the development of mental toughness, as well as one's ability to manage stress (Thelwell, Such, Wetson, Such & Greenlees, 2010). Thelwell et al. (2010) found that mental toughness cultivated through gymnastics, often enabled athletes to overcome fear and regain determination after injury or setbacks. It has also been found that because gymnasts perform in competitions at a young age, they subsequently develop self-confidence as a result of being exposed to and handling this unique pressure (White & Bennie, 2015). White and Bennie (2015) concluded that the athletic atmosphere, the relationships between the athletes, coaches and peers, along with the coaching styles they experience, have been shown to influence the progression of the athlete's self-efficacy and resilience.

Gymnastics often involves the use of a structured progression system that allows athletes to progress to complex skills (Hessell, Hocking & Davies, 2010). This progression method allows athletes to work toward individual goals, experience success at various levels, and advance their capabilities, thus providing a form of positive feedback (Hessell et al., 2010). The progressive learning style, in addition to successful communication with coaches and peers, increased gymnast's self-efficacy (White & Bennie, 2015). As a result of their research, White

and Bennie (2015) determined that gymnasts frequently use psychological skills to cope with the various psychological demands of the sport, therefore enhancing their training efficacy, and ultimately translating those skills into real-world use.

The psychological demands and personal experiences athletes face in their sport can influence their perceptions of the association between their sport participation and their physical health (Theberge, 2008). Theberge (2008) defines health as “an embodied experience that enables or limits the capacity of individuals to meet the challenges and demands they face in specific social circumstances” (p. 208). This could be affected by the injuries suffered, as well as their access to healthcare professionals and sports medicine services (Theberge, 2008). Athletic Trainers (ATs) offer a unique perspective as part of the sports medicine team in that they provide healthcare services and interact with the athlete on a daily basis (Yang, Schaefer, Zhang, Covassin, Ding & Heiden, 2014). Growing research highlights the prevalence of the psychological effects athletes experience throughout their collegiate athletic careers and also emphasizes the role ATs play in the daily care of athletes. Thus, it is important to examine the AT’s viewpoint on the psychological aspect of sport participation (Yang et al., 2014).

Through the Commission on Accreditation of Athletic Training Education (CAATE) accredited education programs, ATs are required to take a formal psychology course and are taught to recognize the signs and symptoms often associated with mental health disorders, eating disorders and other psychological symptoms such as stress, anger or anxiety, all of which they may witness in the clinical setting while working with athletes (Roh & Perna, 2000). ATs can assist athletes in improving their mental health through the use of basic counseling skills and psychological strategies such as active listening, goal setting, motivation/team building, imagery, mental training, positive reinforcement, relaxation, and visualization (Taylor & Taylor, 1997).

The proper detection, referral and treatment of these issues is essential to providing adequate services to maintain the health of athletes. Gymnastics coaches and healthcare professionals often encourage athletes' use of psychological strategies to combat or prevent mental health disorders (Thelwell, et al., 2010). The unique psychological skills required of young gymnasts identified by Thelwell, et al. (2010), are important to be aware of when determining the care to be provided and should be taken into consideration when identifying the signs and symptoms associated with mental health disorders and eating disorders.

The National Athletic Trainers' Association (NATA), provides athletic training programs with educational competencies, which CAATE uses to monitor and maintain the educational standards of the profession. The competencies include the incorporation of psychosocial strategies and referral procedures (National Athletic Trainers', 2011). The purpose of the psychosocial competency is to further educate ATs and offer the appropriate knowledge and skills necessary to use when working with athletes in a professional setting. According to the psychosocial competency, ATs should be able to recognize and provide support to offer holistic care (National Athletic Trainers', 2011). While there is minimal research on the effectiveness of this addition to the undergraduate education, studies have reported that ATs do not feel they are prepared or adequately trained to apply these psychosocial skills in "real world" situations (Clement, Granquist & Arvinen-Barrow, 2013). Therefore, it is important to assess ATs' confidence levels with the detection of eating disorders and mental health issues and application of the appropriate psychosocial strategies in a clinical setting. It would also be advantageous to determine how often ATs encounter athletes who present with such psychological symptoms, while working in the collegiate athletic setting. This information would help to inform and further enhance ATs' ability to provide the most appropriate and effective care to athletes

throughout injuries, rehabilitation and return to play processes.

There has been much research on the various psychological aspects of sport as well as the treatment provided by ATs for such psychological symptoms that athletes can experience (Theberge, 2008; Weise, Weiss & Yukelson, 1991; Yang et al., 2014). The present study aims to examine the experiences of gymnasts to determine how ATs can provide optimal care to prevent or manage the psychological issues that athletes may encounter. It has been argued that because ATs are readily accessible to collegiate athletes, they are in an ideal position to identify risks and treat athletes who experience psychological symptoms or mental health disorders. ATs can offer both emotional and informational support to the athlete throughout injuries, psychological recovery or during the course of their collegiate athletic career (Yang, Peek-Asa, Lowe, Heiden & Foster, 2010). Conversely, some research stressed the importance of understanding and accepting support from specialists, such as sport psychologists, to deliver the most beneficial care for the athlete (Weise et al., 1991).

Injuries sustained by athletes often cause both physical and psychological effects, all of which should be addressed during the recovery process (Yang et al., 2014). Psychological stress may negatively affect injury recovery through increased muscle tension, heart rate, blood pressure, and even altered rehabilitation adherence (Niedefffer, 1983). Yang et al. (2014) examined the effect of social support provided by athletic trainers during collegiate athletes' injury recovery. Social support is an important coping mechanism that can help reduce stress and improve athletes' motivation throughout rehabilitation (Yang et al., 2014). It has also been concluded that social support can help mitigate effects of stress and anxiety after injury (Petrie, 1993). The purpose of the study by Yang et al. (2014) was to document and describe the social support athletes received from ATs, as well as the athletes' satisfaction with the given support.

The authors suggest that because athletic trainers are active in the day-to-day care of athletes, they serve an important role in their psychological health (Yang et al., 2014).

Social support provided by ATs during injury recovery was measured through use of a questionnaire that examined which individuals provided the athlete with support and the degree to which the athlete was satisfied with the given support (Yang et al., 2014). Participants were collegiate athletes who had sustained an injury that prohibited activity and required medical attention. Results showed that over 80% of injured athletes received social support from their ATs. Satisfaction rates were averaged and placed into four categories which ranged from very satisfied with the social support to dissatisfied with the social support. Additionally, athletes who reported greater satisfaction were less likely to suffer from depression and anxiety at return to play (Yang et al., 2014).

Yang et al., (2010) aimed to understand the social support patterns of collegiate athletes before and after sustaining injuries in order to evaluate the role of social support in improving motivation and reducing stress throughout recovery. Social support can be determined by how many individuals act as advocates for the athlete throughout stressful situations. Yang et al. reported little research that has specifically examined the role of ATs in providing this support, and their results suggested ATs have a key role in an athlete's psychological recovery, as long as they are prepared with the appropriate knowledge and skills to do so (Yang et al., 2010). The authors examined differences between male and female athletes' support patterns, as well as their satisfaction with the support they received. They also assessed the changes in social support pre and post-injury (Yang et al., 2010). Using participants from an NCAA Division I university, the authors were able to compare data from both male and female athletes. The research showed that while male athletes reported more sources of social support, female athletes were more

satisfied with the support they received (Yang et al., 2010). The authors concluded that the psychosocial needs of athletes must be identified in order to provide them with the most fitting and effective support (Yang et al., 2010).

Understanding athlete satisfaction can provide health care professionals with the proper information to enhance their quality of healthcare service. Research has also been done to evaluate the level of satisfaction collegiate athletes had with their athletic trainer, as well as the care they provide (Unruh, Unruh, Moorman & Seshadri, 2005). Unruh et al. (2005), aimed to identify athlete satisfaction and determine differences between males and females, as well as between high and low-profile sports. (Football, men's basketball, baseball and women's basketball were classified as high-profile sports). Most participants had a high level of satisfaction with the care provided by their athletic trainers. Female athletes in these high profile sports reported the highest satisfaction (Unruh et al., 2005). After reviewing the results, the authors concluded that ATs can be an efficient and valuable resource for providing psychosocial healthcare. They suggested that ATs follow this same level of care to all athletes (Unruh et al., 2005). These results suggest that high profile sports offer more services that allow better quality of care compared to athletes who participate in low profile sports. It would be beneficial to examine the resources available to athletes who participate in various sports and how it can affect their satisfaction and overall health.

Clement et al., (2013) gathered information from ATs to explore their experiences involving psychosocial aspects of athletic injury. This study determined ATs' coping strategies, psychosocial techniques and current referral practices used when dealing with the psychological reactions experienced by athletes (Clement et al., 2013). The participants completed a survey that measured their perceptions of the psychosocial content of their profession. The results suggested

that although ATs reported using psychosocial strategies, they also highlighted the desire to learn more strategies to enhance their current knowledge (Clement et al., 2013). It is beneficial for ATs to be knowledgeable in basic psychological training, however, research has pointed out that use of such treatments should be individualized to meet the athlete's specific needs, just as a rehabilitation protocol caters to a particular injury (Weise et al., 1991). Previous research has also concluded that gymnasts are often trained to use psychological skills throughout their athletic careers (White & Bennie, 2015). Further insight on those tendencies would be beneficial to healthcare professionals as gymnasts' experience with psychological strategies could ultimately affect their treatment.

White and Bennie (2015) explored how gymnastics participation influenced the development of resilience through interviews of gymnasts and gymnastics coaches. In this study resilience was defined as "when individuals experience successful adaptation despite hardship, by responding positively to stress" (White & Bennie, 2015, p. 379). Mental health can be affected by unpleasant or difficult experiences throughout one's lifetime; therefore, it would be valuable for children to gain a better understanding of how to handle stress. The dangerous nature of the sport, as well as the pressure generated through competition, exposed young athletes to stress, therefore increasing their resilience (White & Bennie, 2015). The findings from this study suggest that the challenges faced by gymnasts offer opportunities for them to learn how to positively overcome obstacles, which can be translated to valuable life skills later on. Mental health was also supported through social support and use of psychological strategies, such as goal setting (White & Bennie, 2015). White and Bennie's (2015) research suggests that because gymnasts are exposed to psychological demands at a younger age, they are encouraged to use these skills and therefore understand their importance and effectiveness in life.

Participation in gymnastics has also shown to aid the development of “mental toughness” (Thelwell, et al., 2010). Mental toughness gives athletes a “psychological edge” that enables them to cope with the demands of their sport by increasing consistency in training, composure, and focus while under pressure (Thelwell, et al., 2010, p. 171). One’s intrinsic determination, social support, and use of psychological strategies have been shown to enhance mental toughness. Coaches and other healthcare professionals should encourage gymnasts’ use of psychological skills (Thelwell, et al., 2010).

Gymnasts have also reported negative effects participation has had on their personal development that could influence their mental health. Lavelle and Robinson (2007) conducted a retrospective study and used semi-structured interviews to examine the experience of women who had retired from gymnastics. The authors studied gymnasts’ development of self-identity and the elements of gymnastics participation that hindered such development. The study concluded that gymnasts are often driven by the need to progress, which can obstruct the development of their identity (Lavelle & Robinson, 2007). It was determined that the sport’s environment inflicted continual pressure that participants internalized and therefore developed a tenacious dedication to their sport. The authors found that this generated perfectionist tendencies, which included being overly-critical of themselves and determining self-worth based on gymnastics ability (Lavelle & Robinson, 2007). This study also showed the coach-athlete relationship greatly influenced the participant’s self-worth. In contrast to positive effect explained by White and Bennie (2015), it appears that coaches can either positively or negatively affect their athlete’s psychological state.

Gymnastics is one of several sports in which body composition is thought to affect performance (Turocy, DePalma, Horswill, Laquale, Martin, & Perry, 2011). This information in

conjunction with evidence of perfectionism and self-criticism, are essential to be aware of as part of the sports medicine team. The early detection of signs and symptoms of eating disorders is necessary; however, it would be advantageous for ATs working with gymnasts to be properly educated in specific weight loss and management techniques. Various practices were outlined by Turocy et al. (2011) and directed towards ATs who often encounter athletes at risk for unsafe behaviors in an attempt to lose weight. These recommendations included providing athletes with proper nutritional information and safe weight management techniques. Nutrition specialists should be consulted to design diet and exercise protocols that are practical, safe and individualized to the athlete. ATs should be well-informed and involved in the assessment of body composition as well as tailoring athletes' goals based on changes in body fat and muscle mass (Turocy et al., 2011).

Thompson and Sherman (1999) wrote a review article that examined the relationship between athletic involvement and eating disorders and recommended changing emphasis of athletic environment from athletic performance to overall health. Educational programs aim to reduce risk but have been shown to familiarize athletes on dangerous behaviors and can potentially lead to them misusing the information (Thompson & Sherman, 1999). It is recommended that coaches not be involved in checking athletes' weight. Although, if it is necessary or beneficial to the athlete's health to monitor this information, it should be done by the healthcare professional.

Thompson and Sherman (1999) define subculture in sport as "attitudes and behaviors" that are "accepted and valued" (p. 330). An example of this would be amenorrhea or an irregular menses being perceived as "normal" among female athletes when in fact it is a warning sign from the body that signifies a potentially serious health concern (Thompson & Sherman, 1999).

The primary responsibility of ATs is to protect the health and well-being of their athletes, meaning they must act accordingly when their athletes experience symptoms such as amenorrhea. Along with the coaches, ATs can play an important role in changing the athletic subculture (Thompson & Sherman, 1999).

A qualitative study conducted by Theberge (2008) used interviews of both male and female athletes from various sports to further explore their accounts of the relationship between their health and sport participation. It was concluded that the “normalization of pain and injury” (p. 206) established of elite athletes in past research was a recurring theme in this study. This normalization can also be viewed as an example of a subculture present in athletics. Sport involvement can positively impact one’s health. It can however be argued the competitive nature of athletics pressures athletes to “play hurt” and therefore suffer from injuries or even long-term health consequences (Theberge, 2008). Many athletes acknowledged the damage they were exposing their bodies to but, they reported development of a “self-awareness” that allowed them to understand how their body responds to injury, training and recovery. Theberge (2008) found that participants controlled health threats through separating their physical health and their immediate ability to compete in their sport. Therefore, it is recommended that coaches and healthcare professionals inform and spread awareness of athletes’ well-being and the negative consequences that could result from injuries later in life (Theberge, 2008).

Although they recognized and accepted the risks associated with athletics, athletes reported both physical and psychological benefits of sport participation (Theberge, 2008). It would be advantageous for ATs to understand and acknowledge this mindset and subculture of collegiate athletics. As previously mentioned, ATs are obligated to provide services that they are knowledgeable in and therefore should use to treat athletes. Part of their professional

responsibility is to stay informed of newly established research and strategies addressing psychological distress (Roh & Perna, 2000). It would be advantageous for ATs to be trained to recognize, evaluate, and treat athletes who may experience psychological symptoms (Roh & Perna, 2000).

ATs are in frequent contact with athletes and as such are in a unique position to observe the athlete's mental and physical state. For that reason, it has been argued that ATs are in an ideal position to help an athlete's psychological recovery after injury or to prevent injury (Roh & Perna, 2000). Roh and Perna (2000) concluded that psychological factors can possibly predict athletic injury and furthermore, either impede or accelerate recovery from injuries. However, 75% of ATs indicated that they do not have access to a sport psychologist for referral to a specialist, suggesting ATs are the ones who treat these symptoms. The authors also noted that 79% of ATs reported they needed or desired continuing education credits that focused on counseling techniques. Because of this, the authors recommended that ATs should be well educated on the signs and symptoms to adequately identify potential mental health issues and increase adherence to rehabilitation (Roh & Perna, 2000).

Weise et al. (1991) examined ATs' use of psychological strategies when treating athletes throughout the injury recovery process. Participants rated their perception of the significance and usefulness of psychosocial strategies which they are taught to use in the clinical setting. It was concluded that specific and individualized programs should be designed to treat athletes who experience psychological symptoms (Weise et al., 1991). Effective communication techniques were beneficial to convey information and provide motivational feedback. A team approach to rehabilitation was recommended to provide holistic care for the athlete. It was argued that it is not reasonable for ATs to be well versed in psychological techniques along with the various

other areas of emphasis of the profession. Weise et al. (1991) suggested ATs assume support from a sport psychologist to offer expertise and therefore enhance the quality of care for the athlete. While this study was not done in recent years, it provides interesting viewpoints of the numerous responsibilities ATs hold and the aspect of the athletic training profession that should be reassessed in future research.

Another study aimed to establish ATs perceptions of their educational training and professional competency in identifying and managing eating disorders (Whitson, Cordova, Demchak, Stemmans & King, 2006). The day-to-day care that ATs provide constitutes its unique trait as part of the healthcare team. Most athletic trainers are also members of the National Athletic Trainers' Association which allows them to connect with other athletic trainers and assists in career development and educational opportunities. To remain certified, all ATs are required to continue their professional development through continuing education credits (National Athletic Trainers', 2011). Whitson et al. (2006) suggest that these continuing education units create an opportunity for ATs to further advance their knowledge in sport psychology, nutrition, and eating disorders.

Whitson et al. (2006) determined only 53.7% of ATs believed they were sufficiently equipped to manage eating disorders and 78.1% reported they wanted more training in this area. Results revealed that 50% of respondents could correctly identify the characteristics of the female athlete triad and only 4% correctly recognized risk factors, 12% recognized warning signs, and 23% were aware of purging techniques. These statistics show a failure to stress the importance of detecting and treating eating disorders in undergraduate education programs for athletic training (Whitson et al., 2006). Results also revealed referral rates were not consistent with the prevalence rate, meaning ATs were not referring athletes who presented with

psychological signs and symptom. This indicated a need for written referral protocols as well as access to the appropriate resources or specialists to help deliver the most effective treatment to athletes who present with eating disorders (Whitson et al., 2006).

It has been found that ATs reported they believed a physician is predominantly responsible for the treatment of athletes with eating disorders. Whitson et al. (2006) suggest this may be a result of ATs feeling unprepared through their education to manage such treatment, however, it is important to consider what other reasons influenced that response. Whitson et al. (2006) concluded there is an association between the two factors, yet it would be beneficial to gain further insight on ATs' position in regard to who should bear the primary caregiver responsibility for athletes suffering from eating disorders or mental health issues. While ATs are often in close contact with athletes, other members of the sports medicine team, such as a sport psychologist or dietician may offer enhanced care in their area of expertise. It is important to analyze these factors when determining professional standards for athletic trainers.

Studies have also shown that student athletes often rely on ATs for emotional, instrumental and informational support (Yang et al., 2014). Yang et al. (2014) pointed out that these different types of social support are most effective at various times throughout the recovery process and because ATs are active in the daily tasks of injury management, they can be a significant source of support to the athlete. Studies also emphasized competent training and knowledge in the recognition and implementation of psychosocial strategies to offer appropriate care to athletes (Yang et al., 2010). Previous data has led to conclusions that ATs have a tendency to use psychosocial strategies that they feel most confident with even if more effective techniques are available (Clement et al., 2013). ATs, as well as the care they provide, have been shown to be satisfactory to a variety of athletes (Unruh et al., 2005). Integrating all of this

information suggests that ATs are a valuable and possibly cost effective intervention when it comes to improving the physical and psychological health of injured student athletes (Yang et al., 2014). Assuming that ATs are indeed critical to this role, further investigation into the level of confidence professionals have when handling psychological symptoms of injured athletes is needed.

ATs are expected to identify, counsel and refer athletes who are experiencing psychological distress. Research has found that 71% of ATs reported they commonly have athletes present with stress or anxiety, yet only 23.9% reported referring athletes to counseling (Larson, Starkey, & Zaichkowsky, 1996). Data such as this suggests that athletic trainers are responsible for providing psychological support to athletes in need. Contrary to that position, ATs also reported not feeling adequately prepared to manage mental health disorders or eating disorders (Roh & Perna, 2000). It is part of ATs' professional responsibility to provide the most effective care, meaning referrals to an expert or highly qualified individual in the area of need. ATs should be well-informed and proficient in recognition and referral practices, including adjusting treatment methods to offer efficient treatment to each individual athlete. Therefore, the psychological state and personal experience with such strategies should be taken into consideration when developing a plan of care.

Purpose

Therefore, the purpose of this study was to explore certified athletic trainer's perceptions and experiences working with collegiate gymnastics in order to better understand, referral patterns, required knowledge, skills, and abilities, as well as clinical proficiencies frequently practiced when treating gymnasts. Specifically, I explored the psychosocial aspects of healthcare related to gymnasts. I aimed to determine whether athletic trainers feel comfortable treating

eating disorders that are often associated with gymnasts. I also investigated their setting's protocol for referral practices and what other healthcare professionals are accessible to treat their athletes. In addition, I examined ATs' comfort level in diagnosing and treating various psychosocial disorders, as well as their knowledge of available resources to help them treat and manage gymnasts who may experience psychological symptoms, mental health or eating disorders.

The information provided by participants allowed me to consider the various psychological aspects associated with gymnastics and how athletic trainers can provide adequate care to their athletes in this setting. Using the information gathered through this study I was able to distinguish the skills and psychosocial strategies that athletic trainers find to be most effective in managing athletes' healthcare. Results from this study will help to inform the athletic training profession of practices in the collegiate environment in regards to providing holistic and integrated support to individual athletes. Specifically, the results will benefit athletic trainers who work with gymnastics by providing insight on the unique social support and referral practices necessary for collegiate gymnasts. The research may also provide a framework for additional professional development for ATs, and even serve as a basis for enhancing undergraduate programs for ATs. Ultimately, the findings should enable athletes to receive higher quality healthcare from their athletic trainers and other members of the sports medicine team.

METHODS

The purpose of the current study was to examine certified athletic trainer's perceptions and experiences working with collegiate gymnastics in regards to eating disorders and psychological aspects associated with the sport, in order to better understand referral patterns,

required knowledge, skills, and abilities, as well as clinical proficiencies frequently practiced when treating gymnasts. Online surveys were used to gather data from participants. Results were then interpreted using qualitative analysis.

Participants

The participants included athletic trainers who volunteered to contribute information. The ATs were randomly selected through the National Athletic Trainers' Association (NATA) database, which generates a random sample of current members to aid in research purposes. The survey, created specifically for this research study, was emailed to a sample of 1000 ATs who are currently NATA members. Both men and women between the ages of 20-60+, all with varying years of experience were asked to complete the survey. Participants were sent an informed consent document to read over the purpose of the study, as well as possible risks and benefits in participating. They were provided contact information if they had any questions or concerns. Completing the survey implied informed consent. Approval for this study, and its consent form, was obtained by the Human Subjects Review Board at Bowling Green State University.

Instrumentation

Athletic trainers who volunteered to participate completed a self-report questionnaire created for this study (See Appendix A). The survey included demographic questions, as well as questions about ATs' experiences with working with collegiate gymnastics, in terms of body composition testing, providing their teams with educational information on mental health and eating disorders, and referral practices at their current professional setting. The survey also included questions regarding the frequency with which ATs encounter athletes with psychological conditions or responses. For example, participants were asked to rate how often

they detect or discuss certain psychological responses like anxiety, fear or depression, with their athletes.

The demographic section gathered information such as age, gender, years of certification, highest degree earned and experience working with gymnasts. The frequency of psychological symptoms encountered were measured using a five-point scale ranging from “never” to “always.” Participants were also asked to rate their confidence in properly identifying and approaching athletes with symptoms of mental health or eating disorders using a scale ranging from “strongly disagree” to “strongly agree.” The survey also included questions regarding the AT’s access to referrals to a specialist and their perceived response of athletes to those services. Finally, participants were asked to give their opinion in short answers on what the AT’s role should be in treating athletes with eating disorders or those who experience psychological distress. Cronbach coefficient α and item analyses were used to explore internal consistency of the survey instrument. Cronbach coefficient $\alpha = 0.79$ and the item analysis ranged from 0.75-0.82. For the Observed Psychological Symptoms Rate section Cronbach coefficient $\alpha = 0.96$ and the item analysis ranged from 0.961-0.966.

Procedures

A pilot study was conducted using volunteer athletic trainers who currently work with varsity athletic teams at Bowling Green State University. The ATs were asked to critique the survey’s structure and content to assess its validity. Once approval and permission was received from NATA, the survey was emailed to 1000 ATs. The survey was open for four weeks. Results were retrieved for data analysis.

Data Analysis

The current study used a mixed methods, non-experimental exploratory design analysis.

Means and standard deviations were calculated for all demographic information and close ended questions. Mean scores were also generated for questions that used Likert-scale responses. The author conducted independent-T tests and one-way ANOVAs to determine differences in respondents. Descriptive statistics and central tendency were calculated. A qualitative analysis was conducted to identify themes throughout the survey responses. The author established initial themes that were based on the questions included in the survey, as well as previous research findings. The results gathered from participants were then coded and organized into the six initial themes. Patterns, relationships and contrasts were then examined to develop more refined, meaningful data.

RESULTS

Demographics

Forty-four (4.4%) surveys were completed by participant ATs and reviewed for further analysis. All the demographic information was organized in Tables 1 and 2. The participants' ages ranged from 20-60+ with the largest number of participants being in the 20-30 years age range (45%). A majority (68%) of respondents reported being female. The years of experience ranged from 1-14+ (8 ± 1.57 yrs), with 30% having more than 14 years of experience as an AT. A majority of participants reported having a master's degree (68%) and 14% had earned their doctorate.

Table 1. Demographic information	
Gender:	
Male	14 (32%)
Female	30 (68%)
Age Range, yrs:	
20-30	20 (45%)
31-40	12 (27%)
41-50	8 (18%)
51-60	2 (5%)
60+	2 (5%)
Years as BOC athletic trainer:	
0-3	10 (23%)
4-6	10 (23%)
7-9	7 (16%)
10-13	4 (9%)
14+	13 (30%)
Highest degree earned:	
Bachelor's	7 (16%)
Master's	30 (68%)
Research Doctorate	5 (11%)
Clinical Doctorate	2 (5%)
Years at current setting of practice:	
0-3	22 (50%)
4-6	7 (16%)
7-9	5 (11%)
10-13	3 (7%)
14+	7 (16%)
Experience working with collegiate gymnastics:	15 (34%)
Years of experience as an AT with a gymnastics team	
0-3	5 (33%)
4-6	2 (13%)
7-9	4 (27%)
10-13	2 (13%)
14+	2 (13%)

Fifteen respondents (34%) reported working with collegiate gymnastics. From this point forward this particular group will be referred to as the 'subgroup.' Twelve of the fifteen respondents in the subgroup were female. All participants in this subgroup indicated that they had earned both a bachelor's and master's degree or higher. Furthermore, 40% of the subgroup

had over 14 years of experience working as a certified athletic trainer.

Table 2. Subgroup Demographic information	
Gender:	
Male	3 (20%)
Female	12 (80%)
Age Range, yrs:	
20-30	6 (40%)
31-40	5 (33%)
41-50	2 (13%)
51-60	2 (13%)
Years as BOC athletic trainer:	
0-3	2 (13%)
4-6	2 (13%)
7-9	3 (20%)
10-13	2 (13%)
14+	6 (40%)
Highest degree earned:	
Master's	13 (87%)
Research Doctorate	2 (13%)
Years at current setting of practice:	
0-3	5 (33%)
4-6	1 (7%)
7-9	3 (20%)
10-13	1 (7%)
14+	5 (33%)

Prevention & Athlete Education

Results from the surveys indicated that 80% of ATs that work with gymnastics provided some sort of educational information or materials to their athletes regarding eating disorders, as well as possible psychological symptoms they might experience as high-level athletes in the collegiate environment. However, only 64% of ATs who were not in that subgroup provided

educational materials to their athletes on the topics. This was comparable to the 60% versus 73% in the subgroup, who reported providing athletes with educational information on mental health disorders. Most ATs (71%) indicated that they dispensed this information through informal conversation involving the AT, dietician, or sport psychologist along with the individual competitor or a group of athletes, as the primary form of education provided. Survey results showed that handouts (59%) and counseling (65%) were also frequently used.

More than half (53%) the respondents reported that their gymnastics team does require some type of body composition testing. The most frequently used was Bod Pod testing (27%), followed by skin fold/calipers testing (13%). One AT indicated using a DEXA scan and one stated that the team works in conjunction with the kinesiology department at their university and therefore receives at least one type of body composition testing per year.

Perception of Gymnasts' Psychological Demands & Social Support

When asked if participants believed that gymnastics was a psychologically demanding sport on a scale of 1-5 (1 = *strongly disagree*, 5 = *strongly agree*), ATs rated this with a mean score of 4.31 (± 0.72), indicating they agreed with the statement. All respondents were neutral (3.03 ± 0.97) when asked their opinion if their team is over trained or over worked. Finally, ATs indicated their perception of the level of social support that athletes received from their teammates and coaches. Responses from the subgroup showed most participants agreed with the statement that their athletes do receive adequate social support from their coaches (3.93 ± 1.16) and all participants agreed athletes received adequate social support from teammates (4.20 ± 0.41).

Table 3. Perceptions of Athletic Trainers

Statement	Mean \pm SD
My athletes receive adequate social support from their coaches.	3.67 \pm 0.93
My athletes receive adequate social support from their teammates.	3.80 \pm 0.76
My team is often over trained or overworked.	3.03 \pm 0.97
I believe gymnastics is a psychologically demanding sport.	4.31 \pm 0.72
It is my responsibility as the athletic trainer to identify, evaluate and treat mental health disorders of athletes.	3.29 \pm 1.15
I can identify an athlete with an eating disorder.	3.77 \pm 0.69
I can identify an athlete with psychological symptoms.	3.97 \pm 0.62
I can approach an athlete with an eating disorder.	4.03 \pm 0.66
I can approach an athlete with psychological symptoms.	4.06 \pm 0.98
I have had adequate professional preparation to deal with eating disorders.	3.46 \pm 0.92
I have had adequate professional preparation to deal with mental health disorders.	3.29 \pm 1.02
I would like more training on how to identify eating disorders and mental health disorders.	3.97 \pm 0.89
I would like more training on how to treat/manage eating disorders.	3.97 \pm 0.89
I would like more training on how to treat/manage mental health disorders.	4.00 \pm 0.87

Perception of Prevalence

A majority (80%) of ATs who worked with gymnastics teams reported they have treated a gymnast with an eating disorder and 93% reported treating at least one gymnast with a diagnosed mental health disorder or demonstrating psychological symptoms. Additionally, results showed an increased prevalence in gymnasts who had experience with amenorrhea or irregular menses among the subgroup.

Participants were asked to rate how often they encounter athletes with particular psychological symptoms on a scale from 1-5 (1 = *always*, 5 = *never*). Responses are presented in Table 4. Independent-T tests found that female participants detected depression due to weight

gain, unwillingness to be patient in rehabilitation, and concerns about disappointing others more often in their athletes than male participants. Seven (36.8%) of the nineteen psychological symptoms in the survey occurred frequently ($m \leq 2.87$). The symptoms included stress or anxiety ($m = 1.80 \pm 0.56$), depression ($m = 2.80 \pm 0.77$), exercise addiction ($m = 2.80 + 0.68$), fear about injury or re-injury ($m = 2.60 \pm 0.51$), unwillingness to be patient with recovery/rehabilitation ($m = 2.87 \pm 0.74$), and concerns about disappointing others (e.g., parents coaches, teammates) because of being injured ($m = 2.20 \pm 0.56$).

Table 4. Psychological Symptoms Observed in Collegiate Gymnasts

Psychological Symptom	Mean \pm SD
Stress or Anxiety	2.33 \pm 1.11
Anger	3.30 \pm 0.99
Depression	3.19 \pm 1
Problems with motivation	3.41 \pm 0.89
Exercise addiction	3.04 \pm 0.94
Treatment adherence problems	3.37 \pm 0.79
Fears about injury or re-injury	3.04 \pm 0.94
Avoidance of rehabilitation or sports-related activities	3.67 \pm 0.83
Feelings of hopelessness about recovering or getting better	3.52 \pm 0.89
Fear of not being able to perform at same level after injury/surgery	3.04 \pm 0.98
Fear/emotional about potential long-term effects of injury (re-injury, inability to return to play)	3.22 \pm 0.93
Depression/frustration due to weight gain or loss of conditioning following injury	3.37 \pm 1.08
Feeling isolated or alone after injury	3.44 \pm 0.89
Problems with pain management	3.69 \pm 0.93
Addiction to or dependence on painkillers	4.26 \pm 0.71
Denial of serious injury or consequences of injury	3.78 \pm 0.75
Unwillingness to be patient with recovery/rehabilitation	3.26 \pm 0.98
Inability to self-motivate in rehabilitation	3.59 \pm 0.8
Concerns about disappointing others (e.g., parents, coaches, teammates) because of being injured	2.67 \pm 1.14

Confidence in Recognition & Attitude towards Professional Preparation

Participants were asked to evaluate and rate their abilities to properly recognize and identify athletes who present signs or indicators of eating or mental health disorders, as well as atypical psychological symptoms. Using a scale of 1-5 (1 = *strongly disagree*, 5 = *strongly agree*), ATs also reported their comfort in approaching athletes with such symptoms (Table 3). The participants rated 3 of the 14 areas from the survey with a mean score of 4.0 or higher indicating agreement with the given statement, including comfort in approaching an athlete with an eating disorder or psychological symptoms and overall desire for more training on how to treat/manage mental health disorders. ATs indicated a slight agreement on their abilities to identify athletes with eating disorders ($m = 3.77 \pm 0.69$) or psychological symptoms ($m = 3.97 \pm 0.62$). One-way ANOVAs found that ATs with their clinical doctorate believed that it is their responsibility to recognize and treat athletes with mental health disorders ($F(3,31) = 3.37$, $p=0.028$). They also reported higher confidence levels in approaching athletes with eating disorders ($F(3,31) = 3.96$, $p=0.015$). This suggests that increased education on the psychological effects of athletics could lead to higher confidence levels when managing mental health disorders. Results also suggest a neutral stance on the professional preparation to deal with eating disorders ($m = 3.46 \pm 0.92$) and mental health disorders ($m = 3.29 \pm 1.02$). ATs did not indicate a strong desire to receive more training in identification of these disorders; however, they did express interest in having increased education on how to effectively manage them.

Referral Practices & Access to Resources

A majority (67%) of ATs stated that their current institution does have a written referral protocol for eating disorders and just 61% reported that their organizations had a written referral protocol for mental health disorders. Most participants (75%) responded yes to having access to both nutrition and sport psychology services as part of their athletic care team. Although sport

psychology services are seemingly available, only 22% of respondents indicated having referred any athletes for such services. Of those ATs who reported referring to sport psychology services, 74% indicated the athlete responded positively to the treatment.

Perception of Responsibility of Treatment

The open-ended questions were analyzed into broader themes based on the responses from participants to further develop the ideas and attitudes presented. Open ended responses were transcribed and reviewed several times. Keywords and phrases were extracted from the responses to uncover common themes, practices, suggestions or positions on the subject. When asked what participants believed the role of the athletic trainer should be in treating or managing eating and mental health disorders a number of common themes were identified. The responses from the ATs highlighted what they believed their role as a healthcare professional was and the specific actions that should be taken in this role. The following sections will present the themes developed in both categories.

Actions of the Athletic Trainer. The overwhelming theme among the responses to both open ended questions was that ATs should recognize and identify the signs and symptoms associated with eating and mental health disorders. ATs are able to use their daily interactions with athletes as a tool to observe any changes in their mood or behaviors to aid in early detection of psychological symptoms associated with these disorders. Many respondents mentioned the significance of ATs developing rapport with athletes to allow open communication in a trusting, supportive environment.

We often times are the ones athletes feel safe to talk with. It is our job to have athletes continue to feel that way, but it is not our job to try to identify/treat an issue we are not trained to treat.

ATs' relationship with the athlete can affect their ability to approach them, initiate

conversations on the topic of mental health and pursue the possibility of considering and seeking further treatment if an issue does exist.

Another common responsibility that was highlighted by respondents was the referral of athletes to the appropriate healthcare professionals that specialize in treating eating and mental health disorders. All participants in this study pointed out the importance of collaborating with specialists in the field to provide the ideal setting and adequate services to assist the athlete throughout recovery. ATs should communicate with all parties involved, including the athlete and be a source of consistent support and positive reinforcement. Their day-to-day contact with the athlete allows ATs to monitor their attitudes, behaviors and responses to the treatment, as well as life stressors, and when necessary intervene to seek additional professional medical support. ATs can be a useful resource to the athlete and the entire sports medicine team in providing routine optimal care for the individual situation.

Role of the Athletic Trainer. A common theme identified in 50% of the participant responses to the open-ended questions was that the treatment of eating and mental health disorders involves a team approach. This healthcare team should include the AT, team physician, dietician, and sport psychologist. ATs routinely emphasized the importance of communication between each member of the sports medicine team, noting that the athletic trainer's unique position of daily interaction with the athlete allows them to act as a mediator or liaison in the management of such disorders.

ATs consistently referred to themselves as confidants to their athletes. The rapport developed with individual athletes through daily interactions can increase trust between the two parties and allow ATs to be a valuable resource for athletes, connecting them as necessary to other healthcare professionals on the sports medicine team. After a specialist has initiated the

referral and treatment plans, ATs act as an advocate throughout recovery, while keeping constant communication between the key members of the sports medicine team.

DISCUSSION

This study aimed to explore the psychosocial aspects of healthcare related to treating gymnasts at the collegiate level. An online survey was used to gather information from ATs regarding their comfort level in treating eating disorders that are often associated with gymnasts, as well as their practices of referral to other healthcare professionals. The study also investigated the specific role ATs play in the recognition, diagnosis, and treatment practices of various psychosocial disorders that they may encounter in their athletes. The information provided by participants provided further understanding of the various psychological aspects associated with gymnastics and how athletic trainers can provide adequate care to their athletes in this setting. The information gathered through this study helped to identify the skills and psychosocial strategies that athletic trainers find to be most effective. This will benefit athletic trainers who work with gymnastics by providing insight on the unique social support and referral practices necessary for working with collegiate gymnasts. This will also allow the athletes to receive higher quality healthcare from their athletic trainers and other members of the sports medicine team.

Demographics

The participants in this study represented several age groups and various years of experience. Six (40%) of the fifteen participants in the subgroup of ATs who work specifically with gymnastics indicated that they had over fourteen years of professional experience. That level of experience can allow an interesting perspective on the strategies and techniques most beneficial to athletic training profession practices. Additionally, all of the ATs in the subgroup

reported earning a master's degree or higher. This advanced education provided this research study with valuable insight in regards to working with gymnasts at the collegiate level.

Perception of Gymnasts' Psychological Demands & Social Support

Survey responses showed that participants believe gymnastics is a psychologically demanding sport for the athlete. This could be the result of the many unique factors of the sport, such as the difficult and sometimes dangerous skills involved, in addition to the intense pressure to succeed at young ages, or stress from the competition atmosphere (White & Bennie, 2015). Results from this study revealed that participants in the subgroup believed the gymnasts they work with do receive adequate social support from their teammates and coaching staff. Social support can be used as a coping mechanism to reduce stress and boost motivation (Yang et al., 2014). Because many participants from the current study agreed gymnastics is a psychologically demanding sport, it is important for gymnasts to use their ATs for this type of social support.

The respondents reported a neutral standpoint when asked if they believed their team is over trained. In her study Theberge (2008) discussed the notion of an athletic subculture in which athletes "normalize" their injuries and vigorous training as a way to be in control of their physical health status. It can be argued that this subculture surpasses the athletes and influences all personnel within athletics. ATs in this study did not believe their athletes were overworked, therefore suggesting that this intense training required of collegiate athletes today is the "norm." Those who work within sports medicine should be aware of this subculture to better understand the mindset of athletes who may show signs of psychological symptoms as a result of stress from their sport participation.

Perception of Prevalence

A large majority of ATs in the subgroup encountered gymnasts with eating disorders and

gymnasts who have presented with psychological symptoms. There was also an increased rate of amenorrhea or irregular menses in athletes treated by ATs in the subgroup. The greater occurrence of these instances further emphasizes the significance of proper recognition patterns, referral to appropriate resources and finally, implementation of treatment plans for athletes, especially gymnasts.

While athletes may experience various psychological symptoms throughout their athletic careers, the following symptoms were shown in the current study to occur frequently among gymnasts: stress or anxiety, depression, exercise addiction, fear about injury or re-injury, unwillingness to be patient with recovery/rehabilitation, and concerns about disappointing others (e.g., parents, coaches, and teammates). ATs can be a valuable resource to athletes as they attempt to overcome psychological symptoms and achieve success in their sport. ATs' consistent presence throughout an athlete's ups and downs, allows them to play a key role in their injury recovery and mental health state. It is important for athletes to receive social support to help them cope with stress, anxiety or depression and ATs, who are equipped with the appropriate psychosocial strategies, have been shown to facilitate this process (Yang et al., 2010).

Through their research, Lavelle and Robinson (2007) concluded that gymnastics can often lead to an unwavering commitment to the sport through its' constant infliction of pressure and that many gymnasts determined their self-worth based on their sport performance. These perfectionist tendencies can lead to exercise addiction as well as constant fear of disappointing others. As healthcare providers, ATs can be a resource for athletes who may experience such psychological symptoms that are often associated with sport. Their educational background should provide them with adequate knowledge to observe these behaviors and act on them appropriately to best serve the athlete.

Prevention & Athlete Education

Through their education, ATs are expected to be able to recognize the signs and symptoms associated with psychological disorders (National Athletic Trainers', 2011). Because gymnastics is identified as sport in which body composition is a possible factor that affects athletic performance, it is not only important for ATs, but also coaches and athletes to be aware of the signs and symptoms associated with eating and mental health disorders (Turocy et al., 2011). Coaches and athletes can benefit from the use of psychological strategies to prevent such disorders.

A majority of participants in this study reported providing educational information on eating disorders and psychological symptoms that athletes may encounter as they compete at the collegiate level. Twelve of the fifteen participants from the subgroup reported they have encountered a gymnast with a diagnosed eating disorder. This further demonstrates the need for ample education for both the athlete and healthcare providers on identification, referral to a specialist, and treatment of eating and mental health disorders. ATs are encouraged to practice early detection of changes in moods and behaviors of their athletes, as well as healthy weight management techniques (Turocy, et al., 2011).

Body composition tests are used by more than half of the gymnastics teams from the present study. It would be advantageous for future research to gather information regarding the reasoning behind the required testing, how often the gymnasts' body composition is tested throughout the school year, and how the team reviews and uses the test results. The AT, and possibly other members of the sports medicine team should be involved in the assessment and subsequent goals of the athletes' body composition to determine the best course of action to benefit their overall health (Turocy et al., 2011).

Psychological symptoms experienced by athletes were also a common finding in the present study, suggesting that ATs would benefit from the use of psychosocial strategies to treat these issues. Previous research has shown that ATs desired more training and education in the application of psychosocial skills, as they do not feel adequately prepared to apply them in clinical settings (Clement et al., 2013). Most participants reported providing athletes with educational information on psychological symptoms, which can help keep athletes informed; however, it would also be advantageous to educate athletes and coaches on techniques they can use to manage these warning signs. Research has found that gymnasts are exposed to the use of psychological skills as a coping mechanism as they face setbacks in their gymnastics careers. Increased experience with psychosocial strategies improved gymnasts' training efficiency and helped them develop skills that proved valuable throughout their lifetime (White & Bennie, 2015). This suggests introducing and encouraging the use of psychosocial techniques as a means to manage stressful situations, would be a valuable prevention method for ATs to use.

Confidence in Recognition & Attitudes towards Professional Preparation

Because ATs are frequently in contact with athletes, often having daily interactions in the athletic training room, at practice, or even traveling and games, they play an important role as part of the sports medicine team (Roh & Perna, 2000). For this reason, early detection of changes in an athlete's mental health is essential to provide the best care for the athlete. Participants from this study did not show any disagreement with the professional preparation they received and subsequently, their abilities to identify athletes with eating disorders or psychological symptoms. A higher mean score was revealed in the ATs' comfort approaching athletes who may present with signs and symptoms of a psychosocial disorder. Athletes have been shown to rely on ATs for various types of social support, including emotional, instrumental, and informational support

throughout periods of stress (Yang et al., 2014). With this information in conjunction with the findings from the current study, it can be concluded that an AT's position allows them to develop a trusting relationship with athletes by providing consistent care and support; therefore, enhancing their confidence in approaching athletes and initiating conversations regarding sensitive topics, such as mental health.

While the ATs reported adequate educational preparation to identify athletes who may present with these issues, they did indicate a desire for increased training in appropriate management and treatment practices. Previous research concluded that ATs believe a physician is primarily responsible for providing the treatment plans for athletes with eating disorders. It has been suggested that this is a result of ATs' reported insufficient education to manage such disorders (Whitson et al., 2006). Nevertheless, it can also be argued that ATs believe that they are not the most qualified professionals on the sports medicine team. ATs' desire for training in the management of psychosocial disorders could be an attempt to gain an in-depth understanding of their specific role as part of the healthcare team and further their interest and abilities in how they can best benefit the athlete in their daily interactions with them.

Referral Practices & Access to Resources

The National Athletic Training Association (NATA) has established ethical standards for educational and clinical practices within the athletic training profession. This includes the integration of psychosocial strategies and referral protocols used by ATs for the treatment of athletes who experience mental health issues (National Athletic Trainers', 2011). In the past, it has been found that a large number of ATs reported not having access to a specialist in the psychology field to which they can refer athletes (Roh & Perna, 2000). This often leads to ATs being responsible for the treatment and management of these issues. Whitson et al., (2006) also

concluded that inconsistent referral rates compared to reported prevalence rates signified a need for referral protocols to be in place to provide athletes with the most effective treatment of eating and mental health disorders. Over 60% of participants in the current study reported having a written referral protocol for the treatment of eating and mental health disorders. While this is not a particularly low rate, it seems the standard of having a referral procedure in place is still not customary at every collegiate sports medicine program.

A majority of respondents have access to both nutrition and sport psychology services as part of their sports medicine team, and yet referral rates to these resources were only at 22%. This can be attributed to low availability of written referral protocols. Access to a written procedure to adhere to would allow ATs to more likely rely on the resources, such as nutrition or psychology specialists, who can offer more effective treatment to enhance the overall health of the athletes. Participants who had referred athletes to sport psychology services reported positive responses to the treatment, indicating a valuable resource that ATs should take advantage of in order to provide optimal care.

Perception of Responsibility of Treatment

Each participant in this study confirmed that identification and early detection of psychological changes experienced by athletes is a crucial responsibility of the AT. The educational competencies required of ATs prepare them with the tools necessary to recognize the signs and symptoms of eating and mental health disorders (National Athletic Trainers', 2011). Furthermore, ATs should be confident in their ability to approach athletes who present with the related symptoms and initiate the appropriate treatment plan. ATs reported that their role is not to be primarily responsible for the diagnosis or treatment recommendations, but rather provide a link between the athlete, coaches and other members of the healthcare team. Participants

consistently confirmed that the athlete's care should be turned over to an expert in the field to supply the athlete with the most practical and beneficial treatment. ATs also indicated they are a regular source of support to the athlete throughout their recovery.

Previous research has shown that decreased access to more qualified medical professionals leads to ATs acting as the primary healthcare giver of psychosocial treatment (Roh & Perna, 2000). While it is important that ATs have a firm understanding of the treatment plans and techniques to manage eating and mental health disorders, it can be concluded that ATs do not believe that they are qualified to provide the best care for the athlete in need experiencing these symptoms. A majority of the participants in the current study stressed the value of a team approach to offer holistic care. An ATs' job responsibilities are complex in nature and it is unreasonable to expect ATs to be as skilled or knowledgeable in psychological techniques as a trained medical expert in that profession (Weise et al., 1991).

This study had several limitations that could have affected the findings. While the open-ended questions provided great insight on the specific role the AT believed they play, it could have deterred participants from completing the survey. While it is helpful to analyze several ATs' perceptions in their own words, the information gathered in this study does not reflect all ATs' viewpoints on the subject. Additionally, the survey instrument used in this study was aimed towards ATs who worked with gymnastics, which could have dissuaded participation. It would be beneficial for future research to gather data from a larger sample to gain a deeper insight into what services ATs provide that best benefits the athlete's health.

CONCLUSION

It has been suggested that ATs believe physicians are primarily responsible for the treatment of eating and mental health disorders because ATs are unprepared to manage such

issues through lack of education (Whitson et al., 2006). Conversely, the current study found that ATs do not believe they are primarily responsible because there are more qualified individuals upon whom they should rely to treat and provide the most sufficient care to the athlete in need. Whitson et al., (2006) found that many ATs were not able to identify risk factors, warning signs, and characteristics associated with eating disorders and the female athlete triad. This is indicative of insufficient education needed to be a competent professional in the field of athletic training. The educational component on the recognition of psychological issues is imperative since identification of signs and symptoms was emphasized by a majority of the participants in the current study.

The team approach was consistently highlighted in the open-ended responses of the survey from this study. After initiating conversation to begin a treatment plan, it is important for ATs to allocate some responsibilities to other members of the sports medicine team, such as a team physician, sport psychologist or dietician (Weise et al., 1991). From there, the AT is responsible for monitoring the athlete's progress through daily interactions at practice or competitions, and then communicating any concerns, issues, behaviors or observed changes to all parties involved. This will allow the athlete to receive care from the most qualified professionals while still accepting informational and emotional support from the AT.

Appendix A: Survey Instrument

Survey of Athletic Trainers' Experiences Managing Psychological Symptoms of Collegiate Athletes

1. Sex:
 - a) Male
 - b) Female
2. What is your age?
 - a) 20-30
 - b) 31-40
 - c) 41-50
 - d) 51-60
 - e) 60+
3. The number of years you have been a certified athletic trainer:
 - a) 0-3
 - b) 4-6
 - c) 7-9
 - d) 10-13
 - e) 14+
4. Highest degree earned:
 - a) Bachelors
 - b) Masters
 - c) Research Doctorate (PhD, EdD)
 - d) Clinical Doctorate (DAT, DPT, MD, etc.)
5. The number of years you have been employed at your current setting of practice:
 - a) 0-3
 - b) 4-6
 - c) 7-9
 - d) 10-13
 - e) 14+
6. Have you ever worked as an athletic trainer with a collegiate gymnastics team?
 - a) Yes
 - b) No
7. If you answered yes to the previous question, please indicate the number of years you have worked as an athletic trainer with a gymnastics team:
 - a) 0-3
 - b) 4-6
 - c) 7-9
 - d) 10-13
 - e) 14+
8. Does your team require and/or offer body composition testing? If so please indicate what type.
 - a) Dexa scan
 - b) Bod Pod testing
 - c) Skin fold/calipers testing
 - d) Hydrostatic weighing
 - e) Biomechanical impedance

f) Other: _____

9. Do you provide educational and prevention information on eating disorders to your team?

a) Yes

b) No

10. Do you provide educational and prevention information on psychological symptoms to your team?

a) Yes

b) No

11. Do you provide educational and prevention information on mental health disorders to your team?

a) Yes

b) No

12. If yes, which most closely describes the form of education provided: (Check all that apply)

a) Educational reading materials (articles)

b) Informal conversation from AT, dietician, or sport psychologist with the team

c) Posters

d) Handouts

e) Workshops/seminars

f) Counseling

g) Other: _____

13. How often do you encounter athletes with amenorrhea/irregular menses?

a) Always

b) Often

c) Sometimes

d) Rarely

e) Never

14. Have you ever had to treat with an athlete with an eating disorder?

a) Yes

b) No

15. Have you ever had to treat with an athlete with a diagnosed mental health disorder or psychological symptoms?

a) Yes

b) No

16. Does your institution have a written referral protocol for eating disorders?

a) Yes

b) No

17. Does your institution have a written referral protocol for mental health disorders?

a) Yes

b) No

18. Please indicate how strongly you agree or disagree with the following statements. 1= strongly disagree and 5=strongly agree.

	Strongly Disagree 1	2	Neutra 1 3	4	Strongly Agree 5
My athletes receive adequate social support from their coaches.					
My athletes receive adequate social support from their teammates.					
My team is often over trained or overworked.					
I believe gymnastics is a psychologically demanding sport.					
It is my responsibility as the athletic trainer to identify, evaluate and treat mental health disorders of athletes.					
I can identify an athlete with an eating disorder.					
I can identify an athlete with psychological symptoms.					
I can approach an athlete with an eating disorder.					

I can approach an athlete with psychological symptoms.					
I have had adequate professional preparation to deal with eating disorders.					
I have had adequate professional preparation to deal with mental health disorders.					
I would like more training on how to identify eating disorders and mental health disorders.					
I would like more training on how to treat/manage eating disorders and mental health disorders.					

19. How often do you encounter the following psychological symptoms in athletes?

Psychological Symptoms	Always	Often	Sometimes	Rarely	Never
Stress or Anxiety					
Anger					
Depression					
Problems with motivation					
Exercise addiction					
Treatment adherence problems					
Fears about injury or re-injury					
Avoidance of rehabilitation or sports-related activities					
Feelings of hopelessness about recovering or getting better					
Fear of not being able to perform at same level after injury/surgery					
Fear/emotional about potential long-term effects of injury (re-injury, inability to return to play)					
Depression/frustration due to weight gain or loss of conditioning following injury					
Feeling isolated or alone after injury					
Problems with pain management					
Addiction to or dependence on painkillers					
Denial of serious injury or consequences of injury					
Unwillingness to be patient with recovery/rehabilitation					
Inability to self-motivate in rehabilitation					
Concerns about disappointing others (e.g., parents, coaches, teammates) because of being injured					

20. Do you have access to nutrition services?

- a) Yes
- b) No
- c) I don't know

21. Do you have access to sport psychology services?

- a) Yes
- b) No
- c) I don't know

22. If you do have access to sport psychology services, how often do you refer athletes that you treat?

- a) Often
- b) Sometimes
- c) Rarely
- d) Never
- e) I do not have access to sport psychology services.

23. If you have referred athletes to sport psychology services, how have athletes responded to the service?

- a) Very positively
- b) Positively
- c) Neither positively or negatively
- d) Negatively
- e) Very negatively

24. In your opinion, what do you think the athletic trainer's role should be in treating or managing eating disorders?

25. In your opinion, what do you think the athletic trainer's role should be in treating or managing psychological distress?

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