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Exploring the Decisions Involved in Evidence-Based Practice Adoption by Athletic Trainers

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EXPLORING THE DECISIONS INVOLVED IN EVIDENCE-BASED PRACTICE ADOPTION BY ATHLETIC TRAINERS

BY

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DEDICATION

To the two most important men in my life, my husband Joe and my father David.

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ABSTRACT

EXPLORING THE DECISIONS INVOLVED IN EVIDENCE-BASED PRACTICE ADOPTION BY ATHLETIC TRAINERS

Brittany Vorndran Allard

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Background: The governing bodies of athletic training have been putting an emphasis on evidence-based practice (EBP) through college curriculum changes and continuing education requirements. Research has shown these interventions are increasing knowledge, but there is still a knowledge to practice gap.

Purpose: The purpose of this study was to explore the decisions involved in EBP adoption by practicing athletic trainers (ATs).

Methods: This study utilized a general qualitative approach that was exploratory in nature. Fifteen participants participated in the study, and all were practicing certified athletic trainers who stated they were using EBP when making treatment decisions.

Data Collection and Analysis: Data was collected using one-on-one phone interviews with a semi-structured interview guide. Interview questions were aimed to understand how participants first became familiar with EBP, what they like about it, and what played a role in their decision to adopt it. Constant comparative coding was used for data analysis, and all codes emerged from the data rather than using a preset list of codes. The Five Stages of the Innovation-Decision Process was used as the theoretical framework to guide the research, and the lens to interpret the data.

Results: Following data analysis, eight themes emerged that influenced the decision to adopt EBP. These themes included: learning about EBP, EBP is important for the profession, healthcare changes and EBP helps to stay current, culture of support, barriers to EBP, decision making backed by research, there are many benefits to using EBP, and balancing components of EBP. The theoretical framework was used as a lens to interpret the findings, and themes fit under the first four stages of the innovation-decision process.

Conclusions: The results of the study showed that participants found many benefits to using EBP including better treatments, quicker return to play, confidence, and improved relationships and communication. Support in the workplace and through mentors also plays an important role in EBP adoption. Developing continuing education and other interventions that focus on ways to overcome barriers and implement EBP into decision making may help ATs who are still struggling with utilization.

Key Words: evidence-based practice; diffusion of innovation; qualitative research

Chapter I

INTRODUCTION

Evidence-based practice (EBP) has been an important topic in most branches of healthcare for many years now, with national organizations such as the Institute of Medicine releasing information encouraging all healthcare professionals to practice in an evidence-based manner (Greiner & Knebel, 2003). Many disciplines of healthcare (e.g. physical therapy, nursing, and occupational therapy) placed an emphasis on EBP for both students and practitioners many years ago, with the goal of increasing utilization (Saunders, Vehviläinen-Julkunen, & Stevens, 2016). The profession of athletic training was lagging with the incorporation of EBP into the educational curriculum and continuing education, but over the last decade this has become a prominent goal of the governing bodies (Hankemeier et al., 2013; Welch et al., 2014a). Athletic training is a profession that is still growing within healthcare and gaining respect. Using EBP is one way to improve the reputation as healthcare professionals.

Background

Athletic trainers (ATs) are defined as “health care professionals who collaborate with physicians. The services provided by ATs comprise prevention, emergency care, clinical diagnosis, therapeutic intervention and rehabilitation of injuries and medical conditions. ATs work under the direction of physicians, as prescribed by state licensure statutes” (NATA profile of athletic trainers, 2014, para. 1). Despite being recognized as healthcare professionals by the American Medical Association (AMA), often the role of

an athletic trainer is confused with personal trainers or physical education teachers. Following graduation, ATs must pass an examination to be board certified from an accredited athletic training program. Beginning in 2022, AT programs that are at the Bachelor's level will be transitioned to Master's level programs, phasing out practitioners working with only a Bachelor's degree (Mazerolle, Bowman, & Pitney, 2015). In addition to the national certification all ATs must pass, 49 of the 50 states also require a certified AT to be licensed to practice (NATA state legislative affairs, 2019).

In order to maintain certification and remain practicing as an AT, continuing education must be completed and reported every other year. Continuing education helps to promote lifelong learning and can serve to both reinforce important topics and keep clinicians abreast with new topics that are emerging in the research (Hankemeier & Van Lunen, 2013). The required continuing education is broken up into different categories that each individual may choose from to achieve the expected number of continuing education units (BOC maintain certification, 2017). Recently, the National Athletic Trainers' Association (NATA) added EBP as a continuing education category that must be completed to maintain certification (Welch, Van Lunen, & Hankemeier, 2014b).

Evidence-based medicine (EBM) was first given an operational definition by Sackett, Rosenberg, Muir Gray, Haynes, & Richardson (1996) who defined it as using patient preferences, clinical expertise, and current research when making treatment decisions. This process involves keeping up with current research, understanding the research, and applying it to clinical decision making. When this process is used clinically it is called evidence-based practice. Despite the emphasis on using research, EBP is

not intended to discount the needs of the individual patient or the skills of the practitioner. The practitioner's expertise includes the education he or she has received along with any additional training or certifications, and experiences he or she has had with other patients (Sackett, 1996). The patient being treated also plays an important role in EBP. Every patient brings his or her own set of concerns, values, expectations, and personal preferences that should be considered when developing a treatment plan (Sackett et al., 1996).

Allied health professions such as nursing, physical therapy, and occupational therapy have been emphasizing EBP and promoting the use among practicing clinicians for many years now (Saunders, Vehviläinen-Julkunen, & Stevens, 2016). Athletic training was slower in adopting EBP into academic curricula and continuing education requirements, but has begun this transition over the last several years (Hankemeier et al., 2013; Welch et al., 2014a). The Commission on Accreditation of Athletic Training Education (CAATE) is responsible for the educational standards that all schools with an accredited athletic training program should be following. Beginning in the 2012-2013 academic year, it became a requirement for all programs to incorporate EBP, with an additional competency outlining fourteen evidence-based practice topics to be taught (Athletic training education competencies, 2011). Furthermore, the Board of Certification (BOC) added an EBP category to the required continuing education in the 2015 reporting period so that practicing ATs who did not learn about this concept in his or her academic program will gain knowledge about EBP (Welch et al., 2014a). Since the addition, there have been two reporting periods, 2015 and 2017, that have required ATs to learn about EBP, the steps to using it, and strategies for implementing it into practice.

Finally, NATA has increased the grant funding for research that is applicable to athletic training, and the common injuries seen within the profession in order in to increase information available regarding best practices and treatment options (Hankemeier, et al., 2013). These strategies to increase knowledge of EBP were implemented to overcome barriers that are reported with using EBP.

There have been several studies that have addressed barriers to using EBP. One barrier that is noted has been a general lack of knowledge about what EBP is and how to use it. Practitioners have indicated that they are not comfortable using EBP and therefore they are not using it when treating patients (Hankemeier & Van Lunen, 2013). Lack of time has also been noted as a barrier to using EBP (McCarty, Hankemeier, Walter, Newton, & Van Lunen, 2013). ATs often have a busy and unpredictable schedule and have noted that they do not have the time to read through lengthy articles to determine what is valuable, so they are not inclined to use EBP. Practitioners who are looking at the research have also stated they feel there is little available research that is applicable to the population they are treating (Welch et al., 2014a). Finally, a lack of institutional support from the places where ATs are employed has been cited as a barrier to using EBP (Dickerson, Lubejko, & Andrew, 2015). Not surprising, these similar barriers, including lack of time and understanding, have been cited in many other healthcare professions such as physical therapy, nursing, and occupational therapy (Manns, Norton, & Darrah, 2014; Salls, Dolhi, Silverman, & Hansen, 2009). While these barriers have been cited as reasons that EBP is not being implemented into practice, there are many benefits as to why EBP use is so important.

Translating knowledge about EBP into use is significant for several reasons. First, using EBP can improve the care the patients are receiving (Welch et al., 2014a). Research has shown that many patients are not being treated with the best options available, and EBP can mitigate this (Saunders et al., 2016). Using EBP may decrease the time that athletes and other patients are sidelined from athletics or work (Haljart, 2013). In athletics this can be very important with pressure placed on practitioners to get athletes healthy and playing as quickly as possible. Furthermore, using EBP can save money for both the facility and the patient. A study conducted in oncology facilities found that patients being treated with evidence-based care saved 35% over the course of a year when compared with traditional facilities (Neubauer et al., 2010). Using EBP may also help athletic trainers to justify billing for treatments and receiving third part reimbursement (Haljart, 2013). Finally, with EBP being so important throughout healthcare, if the ATs are not using EBP they may be looked upon as less credible as healthcare professionals (Hankemeier & Van Lunen, 2013).

Statement of Problem

EBP is a topic getting significant attention in many branches of healthcare because it allows for the use of the best research available to make clinical decisions. However, research is currently showing that there is little change in behavior despite the changes to academic curriculums and continuing education requirements are increasing both knowledge about the concepts of EBP and an understanding of why this is so important for athletic training (Keeley, Walker, Hankemeier, Martin, & Cappaert, 2016). For this initiative to be effective, EBP must be adopted by clinicians and used when treating patients (Hankemeier & Van Lunen, 2013).

Studies following the implementation of EBP continuing education and CAATE requirements are showing that there is an increase in knowledge, but this is not increasing use of EBP when treating patients (Carr, Volberding, & Timson, 2015; Welch et al., 2014c). The authors of one study published after the first reporting period requiring EBP continuing education indicated that participants were still reporting the same barriers despite the emphasis the profession has been putting on EBP (Hankemeier & Van Lunen, 2013). In the literature, research that has shown what barriers there are to using EBP, the perceptions toward EBP, and surveys indicating use, but there is little research exploring clinicians who are using it (Manspeaker & Van Lunen, 2011; McCarty et al., 2013). Investigating ATs who are using EBP when treating patients may provide insight into who is using it, and what supported his or her decision to adopt EBP. This information may be used to develop new initiatives to aid other practitioners using EBP when making clinical decisions.

Purpose Statement

The purpose of this qualitative study is to explore the decisions involved in evidence-based practice adoption by practicing athletic trainers.

Research Questions

Based on the gaps in the literature and the theoretical framework, three research questions were developed. First, what led to using EBP in clinical decision making? Next, how did participants decide to adopt EBP? Finally, what are the perceived benefits to using EBP?

Theoretical and Conceptual Framework

The theoretical framework that was used to guide this dissertation is the Five Stages of the Innovation-Decision Process, part of the Diffusion of Innovation Theory (Rogers, 2003). This theory was selected to guide the research because it outlines the stages that an individual will go through when making a decision to adopt or reject a new idea of innovation. EBP is a relatively new idea to ATs, with research showing slow adoption rates (Carr et al., 2015; Welch et al., 2014c). In order to gain a clear understanding as to what impacted ATs to use EBP in their decision making, study participants were selected because they had adopted EBP into their clinical decision making practices. Since this is a homogeneous group who are all using evidence-based practice, the Five Stages of the Innovation-Decision Process was used as a lens to understand how the participants first learned about EBP, how they decided to use EBP, and what benefits they perceive from using it.

The conceptual framework for this dissertation was EBP as described by Sackett et al. (1996). EBP involves using the best available research, the clinician's expertise, and the patient's individual preferences when making treatment decisions (Sackett, 1996). This framework is central to this dissertation as the objective is to look at participants who are using EBP. While individuals learned about EBP differently and may use it in a different way in the clinic, the framework still consists of the three components, patient preferences, research, and clinical expertise.

Significance of the Study

If EBP is not being used by clinicians, then the goal of diffusing EBP into the profession is failing. Research has shown that ATs understand what EBP is but see the value and importance in using it and, therefore, it is important to understand why they

are not using it (Keeley et al., 2016). While educational research has shown interventions are increasing knowledge of and comfort with EBP, there is still a knowledge to practice gap when it comes to using EBP (Carr et al., 2015; Keeley et al., 2016; Welch et al., 2014c).

There is significant research addressing barriers to adopting EBP (Manspeaker & Van Lunen, 2011; McCarty et al., 2013), but there is little research exploring individuals that have overcome those barriers and decided to use EBP. Investigating a group of individuals who are using EBP when treating patients can provide strategies for athletic trainers who are not yet using it. Understanding the decisions that led to the diffusion of EBP into clinical practice may provide valuable information for future continuing education initiative and academic curricula. While gaining knowledge is an important first step to adopting a new innovation, an increase in knowledge does not necessarily correlate with behavior change. Recognizing what helped individuals who are using EBP with adoption is valuable for success of the EBP initiatives the AT profession has implemented.

Summary

Athletic training is a profession that is still justifying its place in the healthcare industry. Despite the progress that has been made, there are still steps that need to be taken to continue to advance the profession. The profession is fighting for third party reimbursement, which can open the door for many more job opportunities and growth (Haljart, 2013). It is also a goal of the athletic training field to have clinicians at all high schools and colleges working with the sport teams to prevent and treat injuries. The use of EBP by clinicians can ensure that best practices are being followed and patients are receiving the best possible care. This can help to promote the status of ATs as

healthcare professionals. If EBP is successfully diffused into practice, it can be used as justification for reimbursement and substantiate the need of an AT with all sports teams and at all schools (Hertel, 2005; McCarty, et al., 2013). While it has been shown that there is slow adoption of EBP among clinicians, understanding how current athletic trainers that are using EBP made the decision to do so may provide strategies for the profession to increase utilization with other practitioners.

Chapter II.

LITERATURE REVIEW

Evidence-based practice has become an important topic in many branches of healthcare. Allied health professions such as physical therapy, occupational therapy, and nursing have been promoting use and educating practitioners for many years on what EBP is and how it should be used (Saunders et al., 2016). Athletic training has recently made changes to college curricula and continuing education requirements to promote the use within the profession (Welch et al., 2014b). Research in all branches of healthcare have shown varying levels of success. While there has been an increase in knowledge, there are still struggles with translating that knowledge into practice (Hankemeier & Van Lunen, 2013; Hart et al., 2008).

In 2003, the Institute of Medicine released a follow up paper to a summit that was held to discuss methods to enhance quality and patient safety (Greiner & Knebel, 2003). Part of this release discussed the importance of all healthcare professionals emphasizing and employing EBP (Greiner & Knebel, 2003). Since then, many health professions such as nursing and physical therapy have taken steps to educate and utilize EBP. Athletic training lagged behind other professions, only adding EBP into the educational curriculum in 2013 followed by the continuing education requirements in 2015 (Keeley et al., 2016).

Research has shown that, although very beneficial, there are also several perceived barriers to using EBP. To begin, healthcare costs continue to increase, and research has shown that many patients not receiving care based on the best available

research (Saunders et al., 2016). If healthcare professionals do not keep up with the current research available they may be providing unnecessary or even harmful treatments to their patients (Carr et al., 2015). Athletic training is a profession that is growing rapidly, and clinicians are being utilized in more settings than ever before (U.S. Bureau of Labor Statistics, 2016). Sports in the United States have become increasingly popular, with youth sports becoming more competitive at younger ages which puts pressure on ATs to keep athletes playing and get them healthy as quickly as possible (Heitner, 2015). Athletic training has incorporated EBP into the profession over the last several years, but it is important to understand whether the knowledge is being translated and how clinicians made the decision to adopt and use EBP.

Theoretical Perspective

Theory is used to guide the research and frame a study. The theory will inform the research questions, the purpose of the study, and the interview guide. It may also be used as a lens to interpret the findings. Understanding the factors involved in evidence-based practice adoption can only be looked at with a theory guiding this research. The Diffusion of Innovation Theory by Rogers (2003), can be used to look at how individuals decide to adopt a new idea or innovation.

Diffusion of Innovation. The theoretical perspective that was used to guide this dissertation was the Diffusion of Innovation theory by Everett M. Rogers (2003). This theory first came about when trying to understand how farmers decided to use a new type of crop, but has since been applied in many different branches to understand how a new innovation or idea is diffused to the intended population (Rogers, 2003). With any new idea, there will be people that decide to adopt very quickly, and after those adopters show

that the new innovation works there is usually an increase in the amount of people using it. There are also those who lag behind and are the last to pick up an innovation. In order for a new idea to be successful, the targeted group must adopt and use the idea (Rogers, 2003). Rogers (2003) broke adopters down into categories based on at what stage he or she decided to adopt the new innovation and displayed this information with a bell curve.

According to Rogers (2003), the first adopters are considered innovators, and they are the first to take a risk and decide to try out a new idea. The next group are the early adopters, and they are thought to have the highest degree of opinion leadership (Rogers, 2003). After the early adopters have decided to use a new innovation, there is a rapid increase with the early majority of people deciding to use it and then the late majority adopt the innovation (Rogers, 2003). The laggards are the final group to adopt a new innovation, and are often considered to be adverse to change and focused on tradition (Rogers, 2003). While this image is important for understanding the rate at which a new idea or technology may be adopted, the adoption process has been described by Rogers (2003) with a process called the Five Stages of the Innovation-Decision Process. Rogers (2003) described the Innovation-Decision Process as:

> the process through which an individual passes from gaining initial knowledge of an innovation, to forming an attitude toward an innovation, to making a decision to adopt or reject, to implementation of the new idea, and to confirmation of the decision (p. 168).

Figure 1 illustrates the conceptual framework.

Figure 1. Conceptual framework that illustrates the Five Stages of the Innovation Decision Process that explains how an individual decides to adopt a new innovation (Adapted from Rogers, 2003).

As seen in Figure 1, there are five stages involved in a person deciding to adopt or reject a new idea. The first stage is the knowledge stage where an individual is first learning about the new idea. Knowledge can be gained passively with the person hearing about or seeing the innovation, or it may be active with the individual seeking out the information specifically (Rogers, 2003). After there is an understanding of the innovation, the next stage is persuasion, which involves the individual forming either a positive or negative attitude toward the new idea (Rogers, 2003). This stage is more affective, and the individual will form an opinion based on a number of factors including relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2003). During this stage, a person may also look to peers in the group to understand the advantages and disadvantages. The third stage of the innovation-decision process is the decision stage where the individual decides to either adopt or reject the innovation (Rogers, 2003). Based on the knowledge gained and attitude formed, if the person decides they are going to adopt the new idea, the fourth stage is implementation (Rogers, 2003). The implementation stage involves actually putting the new idea or technology to use and overcoming any issues that arise (Rogers, 2003). The final stage

is the confirmation stage where the individual seeks reinforcement for the innovation and continues to find value in using it, or decides to discontinue use (Rogers, 2003).

With a new idea like EBP where there is resistance to change, understanding the decision making of athletic training adopters may help to develop strategies for other clinicians to begin to use EBP. This framework was used to understand how clinicians decided to adopt EBP and what factors played a role in making this decision. Healthcare as a whole has placed an emphasis on utilizing EBP when treating patients, and athletic training was slower to promoting and diffusing evidence-based practice into the profession (Welch, 2014b). The barriers to using EBP have been well researched, but strategies of adopters are still lacking. Athletic training was not recognized as a healthcare profession from the beginning, and has grown and changed through the years to gain respect and recognition. As a profession, it must continue to adapt with other professions such as physical therapy and nursing to work toward goals such as third-party reimbursement (Haljart, 2013; McCarty et al., 2013).

History of Athletic Training Education

ATs were first recognized as healthcare professionals by the American Medical Association in 1990 (Lyznicki, Riggs, & Champion, 1999). Working in a variety of settings, ATs provide injury prevention, evaluation, treatment, and rehabilitation to patients (National Athletic Trainers Association, 2017). When NATA began in 1950, so did the development of a curriculum to provide education for ATs, but a formal curriculum with standards did not begin to take shape until the 1970s (Weidner & Henning, 2002). The first *Competencies in Athletic Training* for education were developed in 1983, with the standards created in the 1970s used as a framework for the

first edition of competencies. The term ‘certified athletic trainer’ did not come to fruition until 1970 with the first exam through the Board of Certification (BOC) occurring that year (Delforge & Behnke, 1999). Since the BOC and national board exam was created, any person calling herself a certified AT is required to pass this exam.

Until the early 2000s, there were two ways that an AT could become eligible for certification. The first, now outdated and no longer allowed, was an internship route that required minimal coursework, and instead had more hands on experience. The internship route required between 1,500-1,800 hours as either an apprentice or an intern student, depending on the year (Peer & Rakich, 2000; Weidner & Henning, 2002). The second method that an AT could become eligible to sit for the exam was more formal education, graduating with either a Bachelor’s or Master’s degree in conjunction with 600-800 clinical hours as a graduation requirement (Weidner & Henning, 2002). As with many healthcare professions, athletic training is constantly evolving to keep up with the current demands and new research available. Because of this, beginning in 2022 athletic training will phase out the Bachelor’s route for becoming a certified AT and require all potential athletic training candidates to obtain a Master’s degree before sitting for the certification examination (Bowman, Mazerolle, & Barrett, 2017). In order to promote lifelong learning, and a habit of keeping up with ever-evolving research, continuing education is a requirement for all certified ATs (Board of Certification, 2018a).

Along with the evolution of athletic training as a profession, the creation of the Board of Certification exam, and the term certified AT, continuing education became a requirement for all certified ATs in 1973 (Cuppett, 2001). Over the years, the amount of

continuing education required and the ways that an AT can obtain continuing education units (CEUs) has changed. Currently, ATs are required to complete 50 CEUs every two years to maintain certification. The BOC and NATA require the CEUs to allow ATs to explore new topics and acquire new knowledge, continue to develop treatment techniques and professional decision making, and stay current with new research in the field of athletic training (Board of Certification, 2018b). When the CE requirements began in 1973, they were created to help promote attendance at national conferences but, since then, they have expanded to truly promote and enable ATs to be a lifelong learners (Armstrong & Weidner, 2010; Cuppett, 2001). Most recently, in 2014, an evidence-based practice category was added to the CEU requirements. In order for all current and future athletic trainers to maintain certification, ten of the fifty required CEUs must come from this new category (Board of Certification, 2018b).

Defining EBP

Evidenced-based medicine (EBM) is an idea that dates back to the 18th century, but was first given an operational definition by Sackett et al. (1996) who explained it as integrating the best available research with the individual's clinical experiences and the patient's standards in order to make clinical decisions. This term, when being used clinically, is called EBP. Unlike a common misconception and a frequently cited barrier to using evidence-based practice, it is not intended for an individual to make use of research blindly, take it as the final word, and devalue the clinician's expertise, but to marry the two (Hankemeier & Van Lunen, 2013; Welch 2014b). For EBP to work effectively, a clinician must use personal knowledge, what is best for the patient in question, and the current research available to make a clinical decision. Research

indicates that there are a large percentage of patients that are not receiving the appropriate care, and care is not being provided based on the best research available (Saunders et al., 2016). Clinicians that have been practicing for many years may become complacent and believe that what has worked in the past will continue to be the best option without inquiring as to whether there is a better, cheaper, or more effective treatment option available (Steves & Hootman, 2004). If patients are not receiving enough care or are receiving the wrong care, this can cause harm to the patient and is an added expensive for both the patient and the healthcare facility. EBP has become a hot topic in all branches of healthcare for this very reason; however, athletic training lagged behind on implementing changes that promote the use of EBP (Steves & Hootman, 2004). EBP is important for ATs to improve their reputation in the healthcare world, justify insurance reimbursement, and most importantly improve care received by athletes and patients (Hankemeier & Van Lunen, 2013a; McCarty et al., 2013).

Using EBP can be broken down into five steps, as shown by Sackett et al. (1996), and this five step process is the method that ATs have been educated on through continuing education. These steps include: (a) defining clinically relevant questions, (b) searching for the best evidence, (c) critically appraising the evidence, (d) applying the evidence, and (e) evaluating how effective evidence-based medicine was when put to use (Sackett et al., 1996). While these steps seem relatively simple when written out, research has shown that clinicians who were not trained to do this feel uncomfortable using EBP (Hankemeier & Van Lunen, 2013a). Because there is constantly new information being published, it can be a daunting task to try and look through all of the research to determine what is useful and what is not. Creating a

clinically relevant question is important because this can help to narrow down the search. Once one or more research papers are selected from using the relevant question, each paper must be critically appraised to determine whether the information is applicable. In order for an individual to critically appraise the evidence, one has to have some knowledge on how to effectively read a scholarly article and the levels of evidence based on study design. This may be a very difficult task for an AT who does not have any experience or background with reading scholarly literature and research methods (McCarty et al., 2013; Welch, 2014a). Applying the evidence properly would require an understanding of the research in the first place, and proper analysis of how useful the evidence is would only be valuable if all other steps were properly executed. Truly getting clinicians to use EBP in their daily clinical practice will require successful interventions, education, and the ability to adapt to what is most effective for different types of clinicians. As mentioned, athletic training was a late adopter to emphasizing the use of EBP, with other allied health professions such as physical therapy, nursing, and occupational therapy researching best practices for several years (Keely et al., 2016).

EBP Implementation in Allied Health Professions

EBP has become a heavily researched and promoted idea in many branches of healthcare as the fields are looking for ways to improve quality of care and decrease cost (Saunders et al., 2016). Healthcare professions such as physical therapy, occupational therapy, and nursing have been finding ways to implement EBP into course curricula and daily clinical practice with varying success. Since many of these professions started to embrace EBP several years prior to athletic training, there has been more research done on best practices in each profession.

Nursing EBP research. Nursing has used different teaching strategies such as online learning, journal clubs, and in person lessons to increase the understanding of EBP and confidence in using it (Saunders et al. 2016; Hart et al., 2008). Saunders et al. (2016) found that teaching about EBP and research utilization separately did increase the confidence and understanding of EBP in both groups. In this study, the intervention group received a live education session that overviewed the five-step approach to EBP such as explaining what EBP was, how to find, appraise, and use the research, but it also went over strategies to implement change and use EBP (Saunders et al.,2016). The control group attended a similar live education session, but the emphasis was a general research utilization program that focused on finding and appraising research without the strategies of EBP. Confidence in using EBP was correlated with education level and past knowledge of the concept but was inversely correlated with age (Saunders et al., 2016). Older nurses were less confident using EBP than younger nurse who may have been exposed to this concept in their educational career (Saunders et al., 2016).

Additionally, Hart et al. (2008) used an online learning strategy to try to increase knowledge about EBP in nursing. There were three online modules that introduced the concept of EBP. All three modules were used to define EBP and explained how to use the five step approach of looking at the research with each module building on the previous one and reinforcing topics already taught. The final module also gave examples of EBP being used clinically to improve patient outcomes and groups that support the use of EBP. This study found that there were significant improvements in the registered nurses perceived knowledge, attitudes, and skill level after completing the

learning modules, but subjects also felt there were still some gaps in the skills required to retrieve and appraise research (Hart et al., 2008). Studies have shown that there is an increase in confidence and knowledge, but there have still been difficulties with translating this information into practice (Hart et al., 2008).

Physical therapy EBP research. Similar to nursing, physical therapy has made changes in the educational curriculum in hopes that it will increase the use of EBP in clinical decision-making. A study completed by Manns, Norton, and Darrah (2014) investigated cohorts of physical therapists (PTs) that had graduated from the same program. Two of the cohorts had graduated before EBP was taught, and two graduated after EBP was integrated into the curriculum. Each subject was given two case studies to evaluate and discuss how treatment decisions would be made in each scenario (Manns et al., 2014). This study found that 45% of all of the subjects' stated clinical experience was the primary source used in clinical decision making, and that there was no difference in perceived use of EBP between the cohorts (Manns et al., 2014). The cohorts that had learned about EBP were more knowledgeable about what it is and how it is defined, but these individuals did not state it would be used any more frequently than the subjects who had not learned about it in school (Manns et al., 2014). This study discussed that there is still a knowledge-to-practice gap with the students learning about EBP in the classroom, and suggested trying to address the time constraints clinicians will have in the workplace and to focus on strategies for students to use EBP in the future (Manns et al., 2014). Another suggestion found in this article that has also been addressed in athletic training research is working with the researchers to provide more streamlined information that will not be as time consuming for clinicians who are busy

treating patients to quickly read and comprehend (Manns et al., 2014).

Another study used an intervention and control group to look at whether there was a difference in knowledge, beliefs, and implementation of EBP before and after an intervention (Olsen, Bradley, Espehaug, Nortvedt, Lygren, Frisk, & Bjordal, 2015). The group of PTs in the intervention group went through a six month program that used different educational techniques to teach about EBP and how it is can be applied clinically (Olsen et al., 2015). Results showed that knowledge about EBP was significantly increased in the intervention group, but there was no difference in EBP implementation between groups following the intervention (Olsen et al., 2015).

Occupational therapy EBP research. Occupational therapy has had similar struggles with having clinicians embracing EBP. A study completed by Thomas, Han, Osler, Turnbull, and Douglas (2017) investigated perceptions of occupational therapy (OT) students at different stages in the same program. This research found that students further in the program were significantly more confident in understanding EBP, but across all groups there were mixed feelings on implementing EBP into practice (Thomas et al., 2017). Despite seeing the value of EBP and feeling more confident with how to use it, students further in the program still noted many barriers such as time and resources that would prevent the use of EBP in clinical practice (Thomas et al., 2017). Another study explored use, knowledge, and attitudes of EBP in practicing OTs (Salls, Dolhi, Silverman, & Hansen, 2009). The results of this survey were similar to many of the other studies completed in other branches of healthcare and showed that, while OTs felt positively toward EBP, there were still limitations to it being used in practice (Salls et al., 2009). In the study completed by Salls et al. (2009) 96% of the survey respondents agreed or

strongly agreed that EBP is important, but only about 25% indicated using literature and research to make clinical decisions.

While there is still some work to be done in order to close the knowledge-to-practice gap in many health professions, there is a foundation in place for learning about and using EBP. To date, other allied health fields such as nursing, physical therapy, and occupational therapy are still seeing a slow adoption of EBP into clinical decision making. There is continued research in these fields in order to understand what is slowing the behavior change. While health professions such as nursing and PT do require continuing education, the standards are not nationally uniform and instead each state determines what is required to maintain certification (Gardner, 2015). Although athletic training does not have specific courses that all ATs must complete to maintain certification, each clinician nationally must complete 50 CEUs with 10 CEUs coming from the evidence-based practice category in order to continue practicing (Board of Certification, 2018a).

EBP and Athletic Training

Studies have shown that most athletic training clinicians are not presently using EBP in their current treatment practice, but 98% of them were found to believe that it is important for the credibility of the profession (McCarty et al., 2013). One of the most frequent complaints of what is hindering the use of EBP in clinical practice is a general discomfort with how to properly use the five-step approach (Hankemeier & Van Lunen, 2013; McCarty et al., 2013). A study completed by Hankemeier et al. (2013) showed that clinicians had a lower perceived importance score and a lower knowledge score when compared with post-professional educators. ATs who work in an athletic training

education program have been more exposed to the concepts of EBP and, therefore, are more knowledgeable regarding EBP and understand its importance more than individuals who only work in the clinical setting. Despite not using EBP effectively, research has shown that many ATs regularly read the Journal of Athletic Training and Journal of Athletic Training Education, but there is still a knowledge-to-practice gap (Armstrong & Weidener, 2010).

Changes were made to the college curriculum requirements of programs and what students should learn in order to promote the use of EBP and increase knowledge on the topic. The governing body in charge of athletic training education programs mandated that all programs must teach EBP to the students in the program and there is a list of EBP educational competencies to guide the teaching (Hankemeier & Van Lunen, 2013; McCarty et al., 2013; Welch et al., 2014b). The NATA has also increased the grant funding for research that is clinically relevant to ATs and that can be used to help make treatment decisions (Hankemeier et al., 2013). Furthermore, all certified ATs must complete continuing education units (CEUs) every two years to maintain certification. This has been in effect for over 40 years and was mandated to not only promote attendance at the national conference, but also to encourage the idea that athletic training is a field with ever changing research and requires dedicated lifetime learning (Cuppett, 2001).

Despite CEUs being a stipulation for many years, the reporting period in December of 2015 was the first time all certified ATs were required to have ten CEUs come from an evidence-based practice category in order to maintain certification. Since EBP was not added to the college curriculum as a requirement until 2013, many

practicing ATs are dependent on the CEUs to teach what EBP is and the five-step process to using it (Welch et al., 2014a). Since most clinicians who graduated prior to 2012 will be relying on the continuing education in order to understand the five steps of EBP, and how to use it, it is paramount that the continuing education (CE) is effective and meeting the needs of the ATs (Keeley et al., 2016).

In a study completed by Hankemeier and Van Lunen (2013), less than 20% of the surveyed clinicians had received any form of EBP training. Based on the information provided in this survey, very few clinicians have prior knowledge of EBP (Hankemeier & Van Lunen, 2013). These clinicians with no background in using the five steps would need some training to be able to integrate EBP into daily clinical practice. There have now been two reporting periods that have required athletic training professionals to report ten of their fifty CEUs in an EBP category. This means that all ATs who would like to maintain certification took courses that teach about EBP. The goal is that this will familiarize all ATs with EBP, and it will continue to be a requirement on each reporting period. There are hopes that, with repeated exposure and an increase in knowledge, EBP will begin to be used more (Keeley et al., 2016). Since this required CE is still relatively new, there is limited research regarding its effectiveness. A study by Keeley et al., (2016) showed that the ATs that were surveyed were not using EBP anymore despite an increased understanding on the five steps of EBP and why using it is important to the profession. There is still work that needs to be done to understand the perspectives of clinicians toward EBP and there may be changes necessary to promote use of EBP in clinical practice.

Benefits of EBP. There are several reasons why the use EBP for ATs is so important. First, using the EBP process can improve the care that the patients are receiving (Welch et al., 2014a). Providing the best care to the patient is paramount and, with the constantly changing field of medicine, keeping abreast with all of the current research can be an overwhelming but necessary task. New research is continually presenting better, quicker, and more effective treatment options (Carr et al., 2015). For ATs working in a team-based setting with physical therapists and other medical professionals, using the best treatment option may also mean saving money or time for the clinic which allows more patients to be seen and helps to keep the cost of healthcare down (Haljart, 2013). Since current research has shown that most ATs are not using EBP effectively or at all, the CE presented to the clinicians is very important. This CE on EBP is the primary mode the working ATs are learning about this topic and the best way to affect behavior change that should increase the quality of care patients are receiving while also helping to save money and time for the clinic and patient (Welch et al., 2014b).

Currently, ATs are working toward justifying third party reimbursement. This is a battle that ATs have been fighting for quite some time with some progress being made (Haljart, 2013; McCarty et al., 2013). Frequently, insurance companies that are providing the reimbursement require evidence for the treatments that are being provided, which is one of the reasons that consistently using the EBP process is so important (Steves & Hootman, 2004). If the use of EBP is effectively incorporated into daily habits by most clinicians, it will give the governing bodies of athletic training more leverage with the Centers for Medicare and Medicaid Service to begin to accept third party reimbursement claims from ATs (Haljart, 2013). This will open the door for many

more job opportunities as ATs will have a greater value at rehabilitation sites and hospitals if they are able to bill insurance companies (Hertel, 2005; Manspeaker & Van Lunen, 2011).

Finally, consistently using EBP will help to improve the status of athletic training in the healthcare field. EBP has been a relevant topic many other fields of healthcare for quite some time. Many of these fields have researched and proposed effective ways to promote clinicians to use EBP in daily decision making. If athletic training does not follow suit and truly begin using the EBP process then it may be looked upon as less credible (Hankemeir & Van Lunen, 2013). Athletic training already struggles to be recognized as part of the healthcare field and if it does not adapt to the current changes and trends that will only make the battle harder. If the CE on EBP is effective in getting ATs to use the five step approach when making decisions, it could benefit the profession in reputation by having clinicians provide the best treatment for the patients, lower costs, save time, and justify third party reimbursement that could increase job opportunities (Keeley et al., 2016; Steeves & Hootman, 2004).

Perceived Barriers to Using EBP. Although there is research that has shown the benefits and importance to adopting EBP into clinical decision making, there are also many challenges that have emerged in the research. Several qualitative studies have addressed perceived barriers to using EBP for both clinicians and ATs in academia. One of the major barriers that was shown in the research indicates that ATs are not comfortable with the process of using EBM and therefore will not use it (Hankemeier & Van Lunen, 2013). Many of the practicing ATs were not taught how to use the process of EBP while in college and are not comfortable evaluating scholarly articles to determine

what is useful and should be considered when making treatment decisions. This is one of the reasons that EBP is now in all athletic training education curriculums, but this does not help ATs that graduated prior to 2012. Another personal barrier that was frequently noted was that the ATs working in many of the various clinical settings do not have time to go through the whole process of using EBP, particularly reading through lengthy articles to help with treatment decisions (McCarty et al., 2013; Welch, 2014a). Truly analyzing a peer-reviewed article to determine its value can be very time consuming. In a clinical environment where athletes and other patients may constantly be around and needing attention, it can be difficult to take the time to read articles and determine whether it has any relevant information that can be applied to the particular situation. Due to the time consuming nature, many ATs feel it is easier to just do what is comfortable or what has always been done because it allows patients to be seen and taken care of in a timelier manner (McCarty et al., 2013; Welch et al., 2014a). One study indicated that ATs felt that if the information in the articles were in a quicker, more streamlined medium there was a higher chance of reading it and utilizing the information because it would be less time consuming (Welch et al., 2014a). Finally, clinical ATs have stated that the research that is available is not applicable to the athletic population and, therefore, not worth using (Welch et al., 2014b).

ATs and other healthcare providers have also noted some organizational barriers that prevent using EBP. Lack of support in the workplace was frequently cited as a barrier (Dickerson, Lubejko, & Andrew, 2015). Organizations and leaders that employ ATs should support them in learning the skills of EBP and using it in making treatment decisions despite it being more time consuming. Another barrier to using EBP that has

been noted was the lack of access to research (McCarty et al., 2013). Members of the NATA have access to the Journal of Athletic Training and Athletic Training Education Journal, but many ATs do not have free access to any other peer-reviewed literature and, therefore, are limited on what can be utilized (Manspeaker & Van Lunen, 2011; McCarty et al., 2013). The organizational and personal barriers may be remedied with increased support from supervisors and increased exposure and comfort with using EBP through continuing education.

Research completed by Welch et al. (2014c) used interviews following a web-based EBP intervention study to determine how the participants felt about web-based learning and EBP. The researchers found that both athletic training clinicians and educators felt that the web-based modules were beneficial to learning how to use EBP. However, only the educators felt that they had taken what was taught and translated it into practice. The clinicians indicated that the web-based modules did not have an effect on the decision-making (Welch et al., 2014c).

This is important to understand and modify in order for EBP to be effectively used in the field of athletic training. If the professionals currently practicing in the field are not translating what is taught through the required CE and are not using it in clinical decision making, then no change is really happening. Since EBP as a component of the required continuing education units for all ATs is relatively new, there is question as to whether there is enough opportunity for ATs to become exposed to the ideas and whether there are enough varying ways of obtaining CEUs to accommodate to each different learning style. Furthermore, because this is such a new topic for ATs, there is little research determining the long term knowledge retention of the EBP process which

would truly show how effective the current CEUs are and whether the knowledge is being translated and used in the clinical and educational setting. Despite these challenges, continuing the effort to incorporate EBP in all ATs repertoire is extremely essential.

Athletic trainers' perspectives on EBP. Due to the fact there have only been two reporting periods of CE that had an EBP category, there is limited research available that has studied ATs perspectives following the CE. Much of the research that is currently available looked at perceptions of ATs on using EBP, but most of these studies were conducted prior to the category of EBP being added into continuing education and college curriculums. Furthermore, fewer studies have looked at outcomes and whether EBP is being incorporated into practice. Carr, Volberding, and Timson (2015) evaluated the comfort, use, and understanding of EBP in clinical preceptors that work with AT students in the field. An intervention group received education about EBP, while the control group received none. Each group was surveyed before and after the intervention regarding each construct (Carr et al., 2015). The results showed that the intervention group scores were significantly higher following the educational intervention in understanding and comfort, but there was little change in use (Carr et al., 2015). This indicated that the knowledge did not result in a behavioral change. A study by Manspeaker, Van Lunen, Turocy, Pribesh, and Hankemeir (2011) found similar results. This study used students in AT programs and surveyed them before and after an EBP intervention. Following the intervention, knowledge and confidence in EBP significantly increased, but interest and perceived importance did not increase (Manspeaker et al., 2011). This study found that

while the AT students learned from the intervention, they still felt there were many barriers such as time, resources, and available relevant research (Manspeaker et al., 2011).

Finally, a study completed by Welch et al. (2014b) used a control and experimental group of certified ATs. Both groups completed a pretest measuring knowledge of EBP. Following this pretest, the experimental group was exposed to a series of web-based modules that addressed the concepts involved in the evidence-based practice process and each person had access to those modules for four weeks while the control group had no access (Welch et al., 2014b). Following the four week intervention period both groups were retested. During the pretest there was no difference in the scores between groups but following the posttest the experimental group had significantly higher scores when compared with both the control and with itself (Welch et al., 2014b). This study helped to show that there is at least short-term knowledge gain when using EBP online modules (Welch et al., 2014b). This information is important as this is a major way that information is being presented to ATs and one of the primary ways to obtain CEUs (Armstrong & Weidner, 2011). However, little research is available to show whether there is long-term knowledge retention and whether the information is being translated into practice.

Continuing Education in Athletic Training Continuing education (CE) is an important method for educating athletic training clinicians on what EBP is and how to use it. Continuing education is a means for professionals to keep up with current research in the field and, for athletic training, it is a requirement to maintain certification (Armstrong & Weidner, 2010). In order for CE to be truly effective, ATs need to understand what modes are best for presenting this information to promote long term

knowledge retention and knowledge translation. A clinician is more likely to respond to the CE if it is in a mode that is preferred (Cuppett, 2001). Some popular ways that CE is presented is through online learning, in person lectures, discussions, hands on demonstrations, and mixed mode learning. Studying modes individually for these gains or comparing one type of CE with another will help to advance understanding on how EBP should be presented to maximize an increase in knowledge and use. In order for any type of continuing education to count for the EBP category it must apply with the Board of Certification and provide a specific format that meets their guidelines. The CE can be foundational, and teach about topics such as the five-step process to using EBP, understanding statistics, and research methods. It can also be clinical and talk about specific injuries or illnesses and ways to treat them based on the evidence (Maintain certification, 2017). Currently there are more clinical EBP programs approved than foundational programs, despite the barrier of not understanding EBP concepts (Manspeaker & Hankemeier, 2017). While there is continuing education currently available for ATs that explain the foundational steps of EBP in detail, there may be a benefit to adding more of these foundational programs in order to help ATs become more comfortable with the concepts without having to repeat a course (Manspeaker & Hankemeier, 2017). The online CE that is devoted to breaking down each step of the EBP and explaining it was free to all ATs on the NATA website and counts toward the ten required CEUs. In the online programming, it explained how to develop a clinically relevant question using the PICO method to narrow down research results, understanding the different types of research studies, and evaluating articles for strength using the CEBM or SORT level of evidence. Research done following this

continuing education showed that the clinicians had a better understanding of what EBP was, but were not using it any more than before completing the modules (Keeley et al., 2016; Welch et al., 2014c).

One study that was completed following an EBP continuing education course that counted toward the requirement used pre-test and post-test surveys and open-ended questions to gauge comfort, understanding, perceived barriers, and perceived use in participants. The participants completed a 5-hour in person program that was foundational in nature (Manspeaker & Hankemeier, 2017). Following the CE, there was an increase in both knowledge and confidence in EBP topics based on the Evidence-Based Concepts: Knowledge, Attitudes, and Use (EBCKAU) survey. Furthermore, open ended questions were provided that were answered by 123 participants. The barriers that were found were similar to those of previous studies and included time constraints, lack of knowledge, and accessibility of resources. Although barriers were discussed, envisioned uses of EBP were also considered. Following the intervention, there were more specific uses discussed included justifying of care, using patient-reported outcomes, and assisting in clinical decision-making (Manspeaker & Hankemeier, 2017). However, because these surveys were completed immediately following the intervention there is no way to know whether the subjects actually did begin to use EBP in the ways he or she envisioned. The authors of this study noted that after seeing the same barriers continuing to be listed after several years there is a need for ATs to perceive EBP as more than just a requirement to maintain certification, but as important and necessary to use clinically and professionally (Manspeaker & Hankemeier, 2017).

Summary

EBP is such an important topic in the world of healthcare because it can help to improve clinical outcomes, decrease cost, and increase patient satisfaction. Several studies have looked at how ATs feel about EBP and what barriers there are to using it (Carr et al., 2015; Keeley et al., 2016; Manspeaker et al., 2011; Welch et al., 2014c). Research has also been completed to understand whether there are increases in knowledge in a short term capacity (Manspeaker & Van Lunen, 2011; Welch 2014b). While understanding the perceived benefits, barriers, and short-term knowledge gain is valuable, it is pertinent to understand whether knowledge is being translated into practice. Clinicians should be using the EBP process when treating patients, and keeping up with research to make decisions. Understanding how clinicians who have adopted EBP made that decision to embrace it can provide a unique research perspective and may provide strategies for other clinicians to adopt EBP as well.

Chapter III

METHODOLOGY

Aim of the Study

As discussed in the two previous chapters, EBP is an important concept for healthcare professionals and should be used when treating patients (Greiner & Knebel, 2003). Athletic training has placed an emphasis on EBP by incorporating it into both the college curriculum for new ATs and in the continuing education that all certified ATs must complete (Board of Certification, 2018a). Research is showing that there is an increase in knowledge and an understanding of importance following these initiatives, but there is still little increase in its use (Keeley et al., 206; Welch et al., 2014b). For EBP interventions to positively impact person centered care, reported use of EBP when making clinical decisions must increase. The purpose of this study is to explore a group of ATs who use EBP when making clinical decisions, as a means to understanding the decisions involved in adopting and using EBP.

Research Approach

A general qualitative approach was used to conduct this research study. Qualitative research involves an inductive approach of exploring participant perspectives and providing more rich insight through dialogue from interviews, observation, or other means (Creswell, 2013). This design was selected for this study because, despite the integration of EBP into college education and continuing education, there is still little increase in the use of EBP (Manspeaker & Van Lunen,

2017). Understanding the experiences of ATs who use EBP when making clinical decisions, the perceived barriers which they overcame, and their successful strategies for implementation of EBP into clinical practice may help to provide insight for those still hindered by barriers.

There are five types of qualitative studies that are generally used: case study, phenomenology, narrative inquiry, ethnography, and grounded theory, but this study did not fit cleanly under any one approach and, therefore, a general qualitative study was decided upon (Creswell, 2013). A general qualitative approach allows for flexibility to design the study to meet the aim of the study. This study is exploratory in nature, and a general qualitative study was selected in order to explore the different dimensions of making the decision to use EBP which cannot easily be measured. The factors that played a role in the decision to use EBP, and the reasons for continuing to use it were explored. Because this study explored the decisions athletic training clinicians made when adopting EBP into clinical practice, it was both reflective in nature and asked about current practice but, overall, it was aimed to understand the experiences of a similar group of adopters.

Using a general qualitative approach, semi-structured interviews were used to collect data from athletic training practitioners. A semi-structured interview approach provides key questions that are asked to each participant, but also allows for flexibility to expand on information that is brought up throughout the interview that may provide meaningful data (Seidman, 2013). Questions were guided by the theoretical frame, the Five Stages of the Innovation-Decision Process, and aimed to understand what factors

led this group of ATs to use EBP (Rogers, 2003). Finally, data was analyzed using this same theoretical framework as a lens (Gale, 2013).

Participants and Sample

The sampling in this study was purposive using criterion sampling. Purposive sampling involves selecting participants strategically that meet specific criteria in order to understand the central phenomenon in question (Patton, 2002). Criterion sampling is defined as using participants that are homogeneous and meet certain criteria (Creswell, 2013). In this research study, participants were all athletic training practitioners who are currently using EBP in practice. Other inclusion criteria include participants who are over the age of 18, hold the board certification for athletic training, and understand and speak English. Each potential participant was screened with a prescreening survey that asked general demographic questions, and questions addressing perceived use of EBP when making treatment decisions. If participants met the criteria, they were invited to take part in a one-on-one interview. Non-purposive sampling, including snowball sampling, was used by asking current participants to identify other certified ATs who may meet the criteria and be interested in participating (Durdella, 2018).

Participants were solicited through Facebook alumni pages for the principal investigator's undergraduate and graduate athletic training programs. Following IRB approval, the Principal Investigator (PI) posted a letter of solicitation on each Facebook page that explained the purpose of the study and asked for participation. This solicitation letter included a link to the letter of consent and the prescreening survey. Both the solicitation letter and the letter of consent asked the participants to send the survey to any other potential participants so that the sample size may be achieved. The

solicitation letter was on Facebook, and any certified AT who was interested in participating may do so, regardless of geographic location. Due to this, all one-on-one interviews occurred over the phone to maintain consistency between interviews.

While there is no recommended set number of participants who should be interviewed for a general qualitative study, enough participants should be interviewed to allow for rich data to be collected to create themes and understand the essence of the experience (Englander, 2012; Creswell, 2013). This research study required approximately 15 participants who met the inclusion criteria. Because this is a qualitative study, rather than having a hard number of participants who must be interviewed, qualitative researchers will collect data until the point of saturation is reached (Creswell, 2013). Data saturation means that there are no new themes being observed from new participants (Durdella, 2018). Despite this general notion of data saturation as the cut off for recruiting participants, there are some guidelines on the number of participants that should be recruited.

Crabtree and Miller (1992) recommended 12-20 participants for maximum variations, and six to eight participants for homogeneous groups. Further research completed by Guest, Brunce, and Johnson (2006), also stated that interviewing approximately 12 participants is adequate for saturation. Finally, Green and Thorogood (2009) recommended interviewing 15 participants for a homogeneous group. Therefore, since this study is qualitative, using interviews as the data collection method for a homogeneous group, the sample size of 15 certified ATs was set.

Data Collection

Data collection occurred in two steps for this study. The first step included an online survey that was available on Qualtrics, an online survey database platform. This survey was posted to the two alumni athletic training Facebook pages to solicit potential participants by the (PI). The solicitation letter included a link to the Prescreening Tool. The Prescreening Tool (see Appendix B) had two sections that must be completed by each participant. The first section asked for the participants' definition of EBP, whether he or she is using EBP when treating patients, and how often he or she perceives they use EBP on a scale of zero to eight or more times per month. The second part asked for demographic information including gender, employment setting, number of years as a certified AT, highest degree held, and NATA district in which he or she is located. Demographic information was used in the results to describe the sample that was interviewed for this study. The questions regarding EBP were only used to determine whether a participant perceives he or she is using it in order to determine whether they meet the inclusion criteria. Participants who completed the survey and indicated that they are using EBP in clinical treatment were invited to participate in the second part of the data collection, the one-on-one interview.

The primary method of data collection for this dissertation was one-on-one interviews. For consistency, and due to the participants being located throughout the United States of America, all interviews occurred by telephone. Interviews took approximately 60 minutes, and utilized a semi-structured approach. Semi-structured interviews follow an interview guide that provides key questions that all participants will be asked, but also allows for flexibility to expand on information that may emerge during the interview (Seidman, 2013). The interview guide (see Appendix C) was laid out to

promote flow and allow for rich data to be collected (Durdella, 2018). The questions were developed around the Five Stages of the Innovation-Decision Process (2003). All interviews were recorded using Tape-A-Call Pro™, a cell phone application that allows for phone calls to be recorded and stored on the cell phone, or uploaded to a computer to be reviewed. Using Tape-A-Call Pro™ allowed each interview to be transcribed verbatim.

Study Procedures

Following Seton Hall University's IRB approval, the PI spoke with the site administrator for the athletic training alumni Facebook pages to two institutions to receive approval to post the study. Afterward, the solicitation letter was posted to each Facebook page explaining the purpose of the study to all potential participants and asking for participation (see Appendix D). The solicitation letter included a link to the Prescreening Tool. If the Prescreening Tool was completed, it was reviewed to determine if the participant was a potential match for the one-on-one interviews. If the participant met the inclusion criteria, he or she was contacted to schedule the phone interview. After the participant agreed to take part in the one-on-one interview, the participant was assigned a participant number to maintain confidentiality. The participant was only referred to by that number throughout the interview, analysis, and results.

If the participant was selected and agreed to take part in the one-on-one interview, the Primary Investigator sent them a letter of consent to sign and contacted them to schedule the interview. No interview occurred before the letter of consent was signed and returned to the PI via email. The letter of consent was sent and returned

through email so the participant also had a copy to keep for their records. As the interview began, the PI asked for verbal permission to record the participant and if he or she consented, the interview began by explaining the purpose of the study and defining EBP. The interview script was used for the remainder of the interview (see Appendix E). Upon completion of each interview, the PI began to transcribe the interview verbatim, and the data analysis began.

Data Analysis

Data analysis and interpretation occurred concurrently with the data collection (Creswell, 2013; Seidman, 2013). Once each interview was completed, it was transcribed by the Primary Investigator into the computer verbatim and analysis of the transcription began (Patton, 2002). Following the qualitative recommendations, the data was first coded and then broken down into significant statements that could be grouped together to develop themes or meaning units (Creswell, 2013; Patton, 2002). NVivo™, a computer software program for qualitative research, was used to organize initial themes among the data collected. Through the theme development, experiences with using EBP were described from the text, and these personal experiences collectively described how participants decided to use EBP (Creswell, 2013). Through the data analysis textural descriptions of what decisions were involved and how it was experienced were developed. Finally, a description portrayed the collective essence of the experience and included direct spoken examples from the participants (Creswell, 2013).

Transcriptions. As mentioned, all interviews were recorded with Tape-A-Call Pro™. The PI began data analysis with listening to the interviews to get a general feel for

the data, and wrote down any initial notes (Creswell, 2013). The one-on-one interviews were transcribed by the PI verbatim, using a key to denote voice inflections, pauses, and other mannerisms (Creswell, 2013). After the interview was transcribed entirely, the PI read through the transcription while listening to the interview to ensure there were no mistakes during transcription (Creswell, 2013). Once the transcription was completed and accurate, it was read through several times to gain familiarity with the content, and initial themes and ideas were noted by the PI (Creswell, 2013; Patton, 2002). All interviews were uploaded into NVivo™ so that codes could be organized and themes developed.

Coding. Codes were developed through emerging themes in the interviews (Taylor-Powell & Renner, 2003). This means that there was no pre-conceived list of codes that the data was being fit into, but rather codes emerged based on how participants are responded to interview questions (Gale, 2013). Coding without an a priori list of codes was selected to allow the information to come from the data itself, and not contain the codes. This began with the first interview and continued with all interviews. Line by line coding was used for the first round of coding, and could consist of a few words, several sentences, or a full paragraph being placed into an individual code (Miles & Huberman, 1994). Because line by line coding was used initially, codes were very specific, with the idea that similar codes would be combined later to create themes (Durdella, 2018). Constant comparative analysis method was used when developing codes from the interviews. This means that coding continued with each interview, and those codes were constantly compared and adjusted as new information emerged from each interview (Fram, 2013; Glaser, 1965). This is an inductive approach that means codes may change and there may be recoding occurring as more information is produced from interviews

(Fram, 2013). Codes were checked over by the PI's committee chair for agreement on codes. If any codes were not confirmed, the PI and committee chair would work together to come to an agreement. Once all interviews were completed, and there was saturation or no new codes emerging from the data, codes were combined to develop overarching themes from the data.

Themes. While there may be many codes that emerge from the data, it is recommended that similar codes are grouped together to create themes to be analyzed (Creswell, 2013; Durdella, 2018). All codes were organized and stored in NVivo™, and this software allowed the researcher to combine codes with similar ideas into a bigger, overarching theme. Creswell (2013) recommends that five to six themes are enough for a qualitative approach. These themes are used to analyze or interpret the data.

The PI went through the codes to look for similar codes to be combined (Creswell, 2013; Durdella, 2018). The PI began this process by reading through each code and the text that was associated with the code to assure accuracy. Once the codes were reviewed, the PI began to cluster together similar codes into meaningful statements, or themes (Creswell, 2013; Miles & Huberman, 1994). Each code was reviewed individually to determine whether it was similar enough to be clustered with another code, whether it was the beginning of an overarching theme being seen throughout the data, or whether the code was not meaningful (Creswell, 2013). After initial coding, and beginning to combine codes into bigger themes, some codes were not combined, as they were not relevant to answering the research questions or understanding the decision process for using EBP.

Themes were developed by clustering codes that were similar to understand the how these participants decided to begin to use EBP, and why they continue to use it (Miles & Huberman, 1994). Clustering involves grouping together similar codes or cases to understand the phenomenon better and create meaning (Miles & Huberman, 1994). As codes were combined, themes began to develop that were representative of many of the participants and not just a single opinion or experience. These meaningful statements, or themes, are used to describe what happened and why it happened (Creswell, 2013; Taylor-Powell & Renner, 2003). Themes are directly related to the research questions developed at the beginning of the study, and were agreed upon with the PI's committee chair (Durdella, 2018).

Interpretation

Finally, once themes were created from the data and coding, interpretation of the data occurred. Findings were interpreted using the Five Stages of the Innovation-Decision Process as the theoretical lens (Gale, 2013). This process, created by Rogers (2003), was used to explain the results of the study, and any results that cannot be explained by this framework were also noted. This framework helped to explain what factors were involved with the decision to use EBP when treating patients. Interpreting the data provided an opportunity to present lessons learned and suggestions for helping ATs still struggling to use EBP.

Reliability and Validity

In qualitative research, the instrument is the researcher rather than an outside tool. Because of this, there are alternative methods to measuring a good qualitative

study and establishing trustworthiness. Reliability was increased in several ways. First, reliability was improved by transcribing all interviews verbatim, having a key that is used consistently to differentiate tone and inflection, and checking over all interviews to assure there were no errors with transcription (Creswell, 2013). Secondly, while coding the data, it is important to have clear guidelines for how the codes are interpreted and created so there is not a shift in the meaning of the codes from one interview to the next (Creswell, 2013). Coding was also checked and agreed upon by an outside source in order to have agreement that the codes are representative of the raw data (Durdella, 2018).

Validity was also considered in this study and methods were employed to improve trustworthiness of the study. First, all evidence that came to light was presented. If there was information that came from the interviews that is negative or goes against the rest it was still be included because it provides a realistic assessment of the phenomenon (Creswell, 2013). Additionally, the researcher made any bias known at the beginning of the study so readers understood the position of the researcher and how that may have affected interpretation (Creswell, 2013). Validity was also increased with member checking or allowing the participants to confirm that transcriptions were both credible and consistent with the message being relayed (Creswell, 2013). Finally, throughout the analysis of the data there were rich, thick descriptions and direct quotes. These descriptions included significant detail of the participants and the phenomenon to allow the reader to determine whether the information is transferrable (Creswell, 2013). All these measures were used to ensure that the results are not biased, and an

individual reading the research can judge whether the results are applicable to his or her situation.

Chapter IV

Results

The results chapter will be separated into two sections. The first section will review the demographic information that was collected for each participant during the prescreening survey. Each participant was required to complete the prescreening survey prior to the interview occurring in order to gain demographic information and determine whether the inclusion criteria was met. The second section of the results chapter will provide the themes that emerged from the data analysis following the in depth one-on-one interviews.

Demographics

The prescreening survey consisted of a total of 13 questions all participants were required to complete. For demographic purposes, 10 of the 13 questions were analyzed. The other three asked about whether the participant knew what EBP was, asked them to define it, and asked them whether they were using it. These three questions were for informational purposes and were not included in data analysis.

Based on gender, 80% of the participants were female, while only 20% were male (Figure 2). According to the National Athletic Trainers' Association (NATA), the membership is 55% female, so this number is not representative of the national average (National Athletic Trainers Association, 2017).

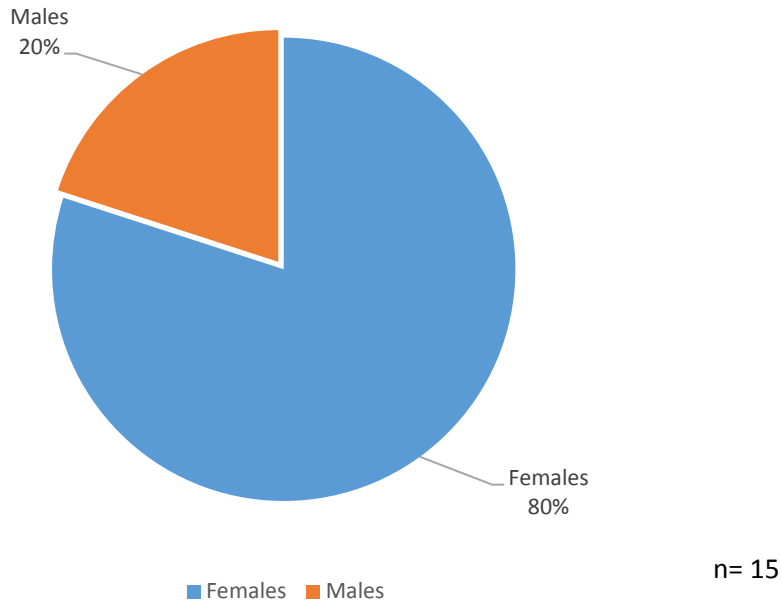


Figure 2. The pie graph illustrates the representation of males and females in the study.

An exact geographic location was not asked of each participant. Instead, he or she was asked what district they practiced in. The NATA has the country divided into ten districts based on geographical region. Based on the reported data, there was representation from seven of the 10 NATA districts (Figure 3). The highest percentage of representation came from district two, which consists of Delaware, New Jersey, New York, and Pennsylvania.

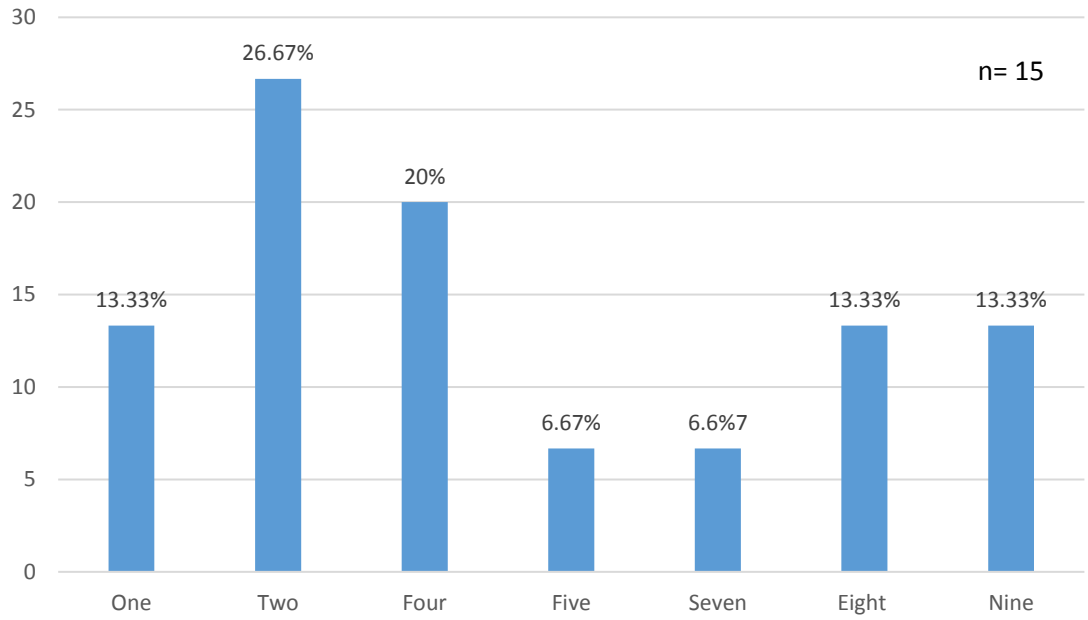


Figure 3. Percentage of participants from each represented NATA district.

Each participant was asked whether their athletic training degree was received as a Bachelor's or Master's degree (Figure 4). Currently, there are programs offered at both levels that allow an individual to graduate with an athletic training degree and sit for the board exam to become a certified AT. While historically there were more Bachelor degree programs offering athletic training, there is currently a transition underway in the way ATs are educated (Bowman et al., 2017). Beginning in 2022, bachelor programs will be phasing out, with the last freshman class being admitted that year. After 2022, all athletic training education programs will have to be Master's level in order to stay compliant with CAATE standards (Bowman et al., 2017). In this study, 86% of participants, or 13 of 15, received their athletic training degree during their Bachelor's education. The other two participants received their Bachelor's degree in another discipline and received their Master's degree in athletic training. Participants were also asked their highest degree they held. Ninety three percent of participants held an

advanced degree, with 13 holding a Master's degree, and one participant holding a Doctorate (Figure 5).

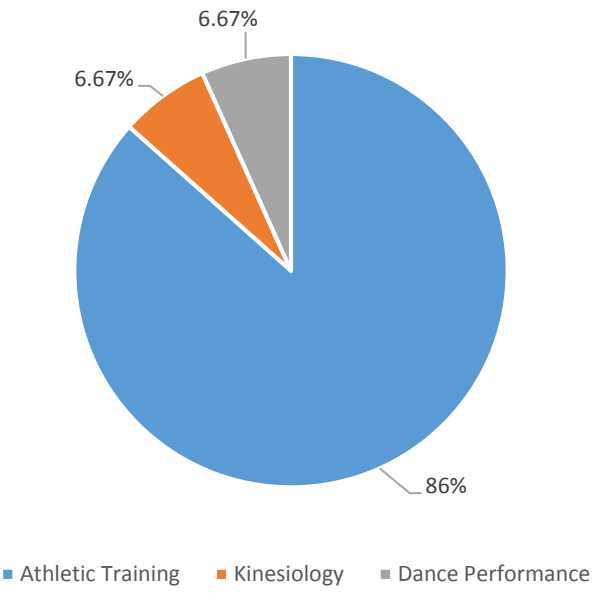
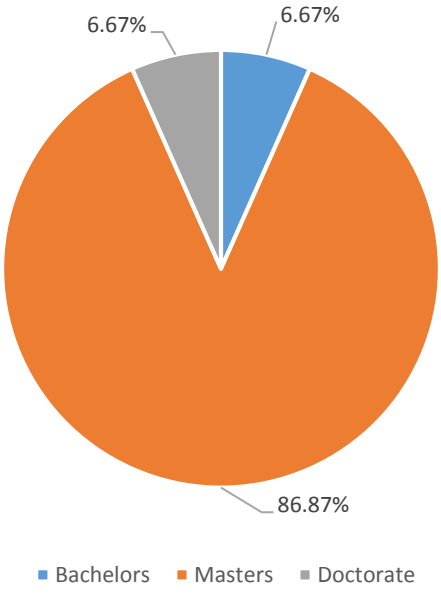


Figure 4. The pie graph represents the participant's reported Bachelor's degree.



n= 15

Figure 5. The pie graph illustrates the highest degree held by each participant in this study.

Participants were also asked the year he or she graduated with their athletic training degree (Figure 6). The year graduated ranged from 2006 to 2017. Forty six percent graduated between the years of 2012-2014, 26.67% graduated between 2006-2008, and 13.33% graduated between 2009-2011 and 2015-2017, respectively.

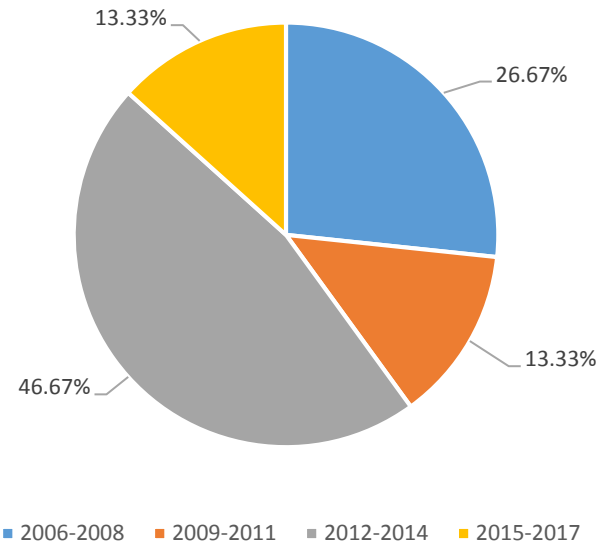


Figure 6. This pie graph represents the year each participant graduated from an athletic training education program.

Participants were also asked how many years he or she has been a certified AT. Graduation dates and certification can be different because the certification exam is not required to graduate, but is required to practice (Board of Certification, 2018b). Some students will take it before graduating, some wait until after to have more time to study, and it take some students more than one try to pass. The years certified reported by participants ranged from one to twelve which corresponds with year graduated (Figure 7).

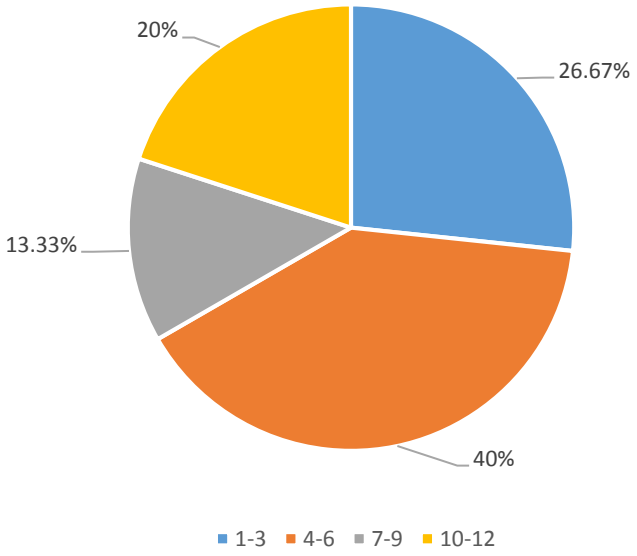


Figure 7. This pie graph illustrates the number of years each participant has been a certified AT.

Participants were asked to provide the employment setting in which he or she has worked. Forty percent of participants indicated they work in a secondary high school setting, and another 40% stated they work at the collegiate level. Thirteen percent work in the professional setting, and 6.67% work per diem (Figure 8). This is in agreement with the national statistics, which report a majority of ATs work in an education setting at either a high school or college (U.S. Bureau of Labor Statistics, 2016).

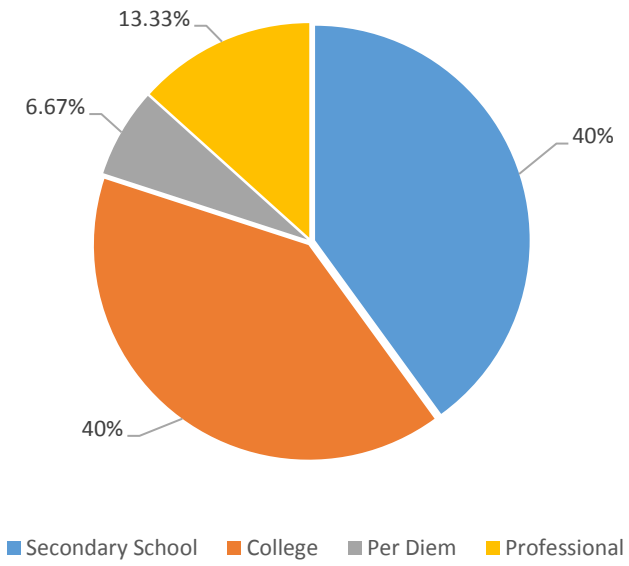


Figure 8. This pie graph illustrates the employment settings of participants.

Finally, participants were only included in this study if he or she was using EBP when making treatment decisions. Participants were asked to rate their average EBP use over the last month (Figure 9). Selections ranged from a minimum of one to three times to eight or more times per month. Fifty three percent indicated they were using eight or more times, 13.33% were using it six to seven times per month, 6.67% were using it four to five times, and 26.67% were using it one to three times monthly.

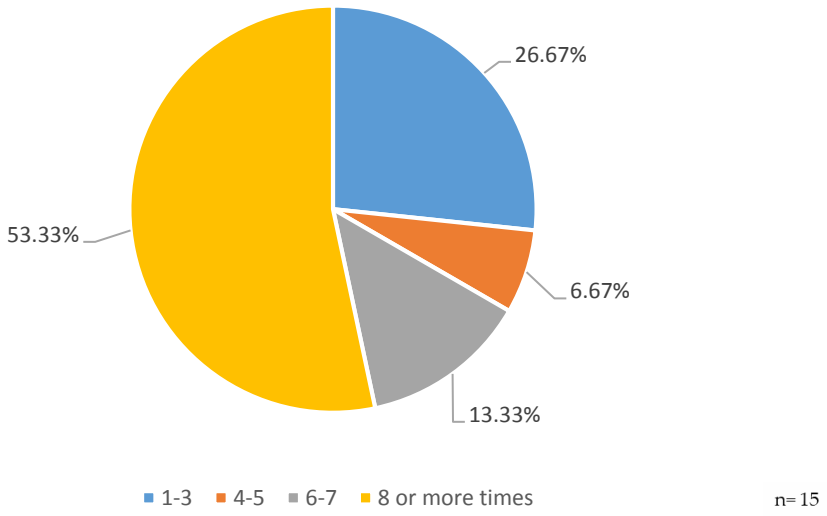


Figure 9. This pie graph represents the reported average monthly use of EBP.

Themes

The second part of the results that will be discussed are the themes that were developed during data analysis. There were eight overarching themes with subthemes that emerged during the data analysis of the one-on-one interviews. Figure 10 provides an overview of the eight overarching themes and subthemes.

Theme
Learning About EBP
- Subthemes
- Undergraduate Education
- Graduate Education
- Continuing Education
- Applied Learning

Theme
Culture of Support

Theme
Barriers to EBP
- Subthemes
- Hard for Young Professionals
- Inexperience
- Overwhelming Amount of Research
- Time
- Clinical Preceptor
- Coaches and Administration
- Old School ATs
- Access to Journals
- Money
- Continuing Education
- Lack of Applicable Research

Theme
EBP is Important for Profession
- Subtheme
- Best Practices Change
- Changing Negative Opinions about EBP
- EBP Continuing Education

Theme
Healthcare Changes and EBP Helps to Stay Current

Theme
Decision Making Backed by Research
- Subtheme
- Research as EBP
- Treatments Not Backed by Research
- Data Driven Decision Making
- Decisions for Doctors Visits
- Positive Outcomes
- Using EBP to Determine if a Treatment Works

Theme
There are Many Benefits to Using EBP
Subtheme
Be a Better Clinician
Confidence
Makes Life Easier
Makes Sense to Use
Best Patient Care
Improve Relationships and Communication
Quicker Return to Play
Safety and Avoid Legal Issues
Theme
Balancing Components of EBP
Subtheme
Clinical Expertise
Patient Centered Care
Research Plays an Important Role

Figure 10. Eight overarching themes and subthemes that emerged during data analysis.

Eight overarching themes and subthemes that influence the decision to adopt evidence-based practice.

Learning about EBP. The first theme is learning about EBP. Participants in the study highlighted four major ways that EBP was first learned about. These included through undergraduate education, graduate education, continuing education, and applied learning.

For most participants the topic of EBP was first introduced in formal education and has been reinforced with the required CE. When discussing learning about EBP, participant three said “I mean it was pretty indoctrinated into my undergrad education, so I guess just whatever my education in athletic training was, that was part of it.” While some participants learned about EBP during undergraduate education, others were not

introduced to the topic until graduate school. As participant five said, when talking about her graduate experience:

> We had to do a whole project on evidence-based and that set the tone for our entire program, of this is evidence-based, it's gotta be evidence-based. If it's not evidence-based then, kind of like, what's the point?

CE has played a role in expanding knowledge about EBP and learning new topics. Participant 11 said, "A lot of the EBP that I've used come from CEUs where they show like a marked improvement in a certain kind of condition because they used a certain skill." Finally, when discussing learning about EBP, applying what has been taught to practice has also helped to reinforce this idea, and help participants make the decision to use EBP. As participant three said, "…just trying to use our own research into just I guess like finishing assignments basically. Even during our clinical experience, we had the proficiencies, we'd always have to use some sort of evidence-based practice, for completing those proficiencies."

Culture of support. The next theme is culture of support. Having mentors while going through the education process, and coworkers who push the idea of EBP helps motivate use. Institutional support, or support in the workplace, also helps to promote the use of EBP. Participant six said:

> We collaborate on lots of ideas generally, and if I find something that we should try, my physicians that I work with will be very supportive in it. Or if they come along some new evidence-based practice research they'll let me know about it and help me implement it then, in my setting.

Seeing others use EBP makes it easier to adopt it. Participant seven expanded on this idea stating, “I not only got to hear and be told things in the classroom, but then when I was able to see those same people modeling those same behaviors, so it kind of became the culture around me.” Working in a place that is supportive of continuing education and seeking out research is also significant in cultivating EBP use. Participant 12 said:

> My supervisor, my bosses, my colleagues, we all have our certain areas where we do research and we’ll actually share the articles with each other, but we’ll also share our conclusions and how it’s applicable to the clinic and we’ll give it a cliff notes version, so we don’t have to read every single article, we can just learn from each other as well.

Barriers to EBP. The third theme that emerged during data analysis is barriers to EBP. This theme had several subthemes that emerged, and are separated by intrapersonal, interpersonal, organizational, and professional barriers. Intrapersonal barriers are defined as barriers that exist or occur within oneself individually, while interpersonal barriers are considered those that occur between people, or the individual and others (Mihir, 2011). Organizational barriers are those that occur within or stem from the workplace. Finally professional barriers are the barriers that exist at the professional level including the national organizations (Mihir, 2011). There was no a priori list used when developing themes, but the barriers noted in this study are linked closely with previous EBP literature on barriers (Hankemeier & Van Lunen, 2013; McCarty et al., 2012; Welch et al., 2014a). Participants noted specific barriers he or she

had to overcome in order to successfully use EBP. Finding ways to overcome the barriers made it easier to use EBP when making treatment decisions.

The first group of barriers were intrapersonal, or barriers within the clinician or involving the clinician. The first intrapersonal barrier is that EBP is hard for young professionals, with participant five saying, “I think that evidence-based practice can be terrifying at the beginning of your career, or when you first start utilizing it because there’s so many different components.” A similar intrapersonal barrier to this was general inexperience. Participant eight stated, “I knew it was something that was going to be important but when I first was learning about it, I was like why am I learning about this in undergrad? You’re here to teach me.” Participants also discussed the feeling of keeping up with an overwhelming amount of research as a barrier. Participant 14 said, “One of the things that can be overwhelming is just… the volume of research coming out, what you have access to, what you don’t have access to, and just trying to keep up.” Finally, having enough time was discussed as a barrier, with participant one saying:

> …accepting that I’m gonna have to do some stuff when I’m not working, to be able to have time to actually look stuff up and really do the research that you need to do. It takes a lot more time.

All of these barriers were intrapersonal in nature, but there were also interpersonal barriers discussed throughout the interviews.

Interpersonal barriers included working with clinical preceptors who are not as receptive to EBP. This barrier was discussed with clinical preceptors who were either not using EBP in the working world, or who were even talking negatively about EBP,

which directly conflicted with what was being taught in the didactic setting. Participant five said:

> I just remember being trapped in the middle of, you know being a student, and being like oh but I'm supposed to know all this, I'm supposed to learn all this. And then you know, being out with real certified ATCs, and being like well… never mind, like they're saying this isn't supposed to be a thing or you know it doesn't make sense, and I can just remember being very confused by it.

This perspective comes from a student's point of view, as clinical preceptors oversee the clinical, hands on, aspect of education, but there were also interpersonal barriers for practicing clinicians as well. Participant 13 discussed barriers to working with coaches and administration at her institution saying:

> I feel like the main thing is working with my coaching staff, especially older coaches, and there's one of the coaches from my football team specifically who before my school had athletic trainers he was kind of the like fake trainer, and he just, he does a lot of old school things.

Coaches and administrators are often not keeping up with current best practices in the same way a healthcare provider should be, which can make it difficult to try new things and change practices based on best available research if they are resistant to change. Old school ATs were also discussed as a barrier with participant nine saying, "Just competing with the ideals of an older generation of athletic trainers that you know have been doing something one way for many years and they haven't changed or you know they're struggling to change." EBP was only incorporated into college curricula

and CE within the last decade, so some older ATs are resistant to change, making it challenging for ATs who are newer to the field and open to the idea.

There were also organizational and professional barriers that were noted. The first organizational barrier that was discussed was working at an institution that does not provide access to journals and research databases. Participant eight noted this as a major barrier saying:

> The ability to gain access to see those articles. I currently don't work in a place that gives me access to any journal base, easily…I don't have access to a large database of, evidence-based research outside of what the NATA provides.

All members of the NATA have access to the *Journal of Athletic Training* and the *Athletic Training Education Journal*, but depending on the workplace, these may be the only journals in which an individual has access. Participants in this study saw the value in being able to view research from other prominent journals and databases in order to be able to keep up with best practices more efficiently. Money was also noted as a barrier. Being able to purchase new and better equipment along with the ability to afford CE courses was also discussed in this subtheme. Participant three said, "What we have for money, purchases, and if we can actually afford it or do we just continue doing the same stuff we've been doing even though it might not be the gold standard." Many of the best education courses and new tools and equipment are expensive, which can provide a challenge with workplaces that are constantly looking to save money in the budget rather than spend extra.

Finally, there were two professional barriers. The first was CE. While CE has been a way for some participants to learn more about EBP, for others it was seen as a barrier. Participant 12 said, “It [EBP requirements] has changed where I look for my CEUs and how I select them to ensure I maintain requirement, but it has not had a direct effect on my day to day practice.” Lack of applicable research was also discussed as a barrier, with participant 12 saying, “I work with a very diverse population, where the evidence may not directly apply, like may not be spouted out word for word in the evidence that can apply to this case.” While there is a significant amount of research available, participants felt that there was not enough research that was directly applicable to the patient population. The subthemes for this overarching theme emerged during data analysis, but these barriers mirror other research that has been completed regarding EBP use (McCarty et al., 2013; Manns et al., 2014; Welch et al., 2014a).

EBP is important for profession. While there were many barriers that needed to be overcome, as discussed in the last theme, the next theme is that EBP is important for the profession. Participants acknowledged and recognized that EBP is important for athletic training, with participant five saying:

> If I was going to be in this program that taught specifically about creating leaders in the athletic training profession, and one of those things was evidence, was utilization of evidence-based practice, it was like well I need to do that then. Like this is something that, if this is what the leaders in the profession are saying needs to be used, you know, as a young clinician I trusted in that process.

Participants felt that if more ATs begin using EBP, it can help to bring up the reputation of athletic training in the healthcare world. Participant 13 discussed this idea saying:

> In order to get more respect in the medical field which is kind of like why I transferred into athletic training, you have to treat your own clinical practice like how a doctor or nurse or a physical therapist would, and that's how those field are run [using EBP].

Participants felt the governing bodies of athletic training have placed an emphasis on EBP for a reason. There were three subthemes that emerged during data analysis and all were practice related. The three subthemes are best practices change, changing negative opinions about EBP, and EBP CE.

The first subtheme to the overarching theme of EBP is important for the profession is best practices change. This subtheme was particularly relevant to keeping up with best practices when treatment patients with participant one saying:

> It's [EBP] given me different ways to do like testing for injuries, it's given me like especially different ways to treat concussions and how to test for them, and I feel like every time I read a new article about something it's teaching you something else.

Changing negative opinions about EBP also emerged as a subtheme. There are still clinicians who have a negative perspective toward EBP when first learning about it, so changing that attitude is important for the profession to embrace this concept. Participant 11 said, "The way that they explained it [EBP] didn't make me keen on using it. It wasn't until much later that I realized that it could actually be useful." Finally, evidence-based CE emerged as a subtheme with participant 13 saying, "I can see that as time goes on it's going to be harder, the farther I get away from like my formal

education. So that's obviously why continuing education is important." The required CE is important for participants to stay current and to keep the profession advancing.

Healthcare changes and EBP helps to stay current. The fifth theme is that healthcare changes and EBP helps to stay current. Participants emphasized how important it is to stay up to date with current research and best practices as a healthcare professional. Participant six said:

> I wanted to make sure that I was growing with the field, since the medical field is ever-changing I didn't want to be someone who is seen as set in their ways. I wanted to be seen as someone who is changing as much as science and research is changing.

EBP provides a way to stay on top of new trends and provide the best patient care. Keeping up with research is important for providing the best patient care. Participant four said:

> The research is changing, constantly, so what we think could be beneficial now, might be proven not to be beneficial ten years down the road, and it's all about just trying to optimize our athletes, or your patients or clients, or whoever you're seeing, to optimize their care.

Clinicians in this study had a fear of falling behind or looking less credible if he or she is not keeping up with best practices. Participant 11 said, "I don't think you can be a good athletic trainer unless you're trying to figure out new ways of doing things because everything is constantly evolving."

Decision making backed by research. The next theme that emerged during analysis is decision making backed by research. Participants discussed the importance of using research to back up treatment decisions, with participant four stating, “Always trying to implement what’s been proven, and maybe not necessarily proven, but researched thoroughly…trying to make educated decisions for my patients that I can help them get better.” Using research provides the opportunity to show information to patients to justify treatment decisions and prove the treatment works. During the one-on-one interview, participant 13 said, “You can explain to your patients why you’re doing what you’re doing, and that there are proven outcomes, and even if they’re not getting instant results, you have something to back up like why you’re doing what you’re doing.” There were six subthemes that also emerged under this overarching theme. These subthemes were either research-based or practice-based.

Two research-based subthemes emerged from the overarching theme. The first was research as EBP. There is an emphasis put on research when discussing using EBP. For some participants the terms research and EBP were almost used interchangeably, and using research is the main means in which these participants identify they use EBP. Participant 10 said, “I’d go through PubMed or EBSCO or whatever the research database that we have and going through and looking at different um like therapeutic interventions for low back pain and just seeing like what they had.” Treatments not backed by research also emerged as a subtheme with participant 13 saying:

> So, even if I'm going to do something that you know doesn't have the strongest evidence, I'll usually tell my patient that and will say this has worked in the past but you know it's kind of neither here nor there as far as the research goes.

While research is important for making treatment decisions, it was recognized that not all treatments have enough research to back them up, but knowing the difference when making decisions is important.

There are four practice-based subthemes that emerged during data analysis. The first subtheme was data driven decision making. Participants felt that it is not only important to use research when making decisions but using hard data and numbers has value. Participant 14 said:

> I think I'm an objective person, so I like to have data and numbers to I think back my decision…to like show data to my patients, show data to my coaches, show data to my staff to help prove a point.

The next subtheme was decisions for doctors' visits. Participants in this subtheme credited EBP with not only helping to decide when an athlete needs to see a doctor, but also allowing more patients to be seen in the clinic rather than be sent out. Participant eight stated, "It's definitely allowed me to work with more athletes that I would typically refer, um, to a more physical therapy like setting where they have um more advanced interventions." Another subtheme that was discussed with decisions backed by research were the positive outcomes the clinicians were getting by using research. Participant one said, "With all the research we decided that he should start

doing some magnesium and calcium and then obviously continue to eat and drink and everything, but we did that, and that has actually worked."

Finally, participants talked about using EBP to determine if a treatment works with participant 12 saying, "It has changed my clinical practice on some modalities and some treatments that I used to do that I have found things that work better and are more efficient, and have more research and evidence behind them."

There are many benefits to using EBP. The seventh overarching theme is there are many benefits to using EBP. After overcoming the barriers and putting EBP to use, clinical experiences and working with patients is easier, and clinicians feel they are better because of it. Participant four said, "I think it's just making me more of a well-rounded clinician, and constantly keeping me in that learning mindset, right? So, yes you're done school, and yes you go through your continuing education, but there's always stuff to learn." There is also confidence that comes from using EBP in treatment decisions. Participant five said:

> The nice part about evidence-based is it gives you more of a guideline to follow, especially as a younger clinician I didn't feel as lost or abandoned or freaked out, or anything like that. It was like, it felt like I had… it wasn't necessarily like a perfect roadmap, I would say it was more like a treasure chest map, where it's like ok, here are all the spots you have to hit, but you still have to do the work to get it there yourself.

Participants also felt using EBP helps to improve relationships with coaches and athletes and helps to provide better care for patients. There are eight subthemes that

emerged under this overarching theme, touching upon specific benefits. These benefits were divided into intrapersonal and interpersonal benefits.

As participants were discussing perceived benefits, many were self-reflective or intrapersonal. The first subtheme that emerged was that EBP helped the individual to be a better clinician. Participant 11 said, “The EBP scales that I was taught that deal with the chronic inflammation helped me become a better clinician because I was a lot better at, helping the athletes who had those problems.” Participants generally felt they had improved as healthcare professionals because they were using EBP. Confidence from using EBP was also a subtheme that was discussed by the participants with participant 10 stating:

> The other thing too is I definitely feel a lot more confident when I’m talking to them because I like after doing the research and reading through it I feel confident in my decisions and in the decisions I’m making.

The final two intrapersonal subthemes include EBP makes life easier, and it makes sense to use EBP. Participant 13 said when discussing how it makes life easier, “If we’re all using the same standards and the same evidence for our treatments it just makes everything more smooth.” These participants felt that life was easier in the clinic because of using EBP, and when everyone was on the same page and practicing the same way it made things smoother. Finally, several participants discussed the idea that it makes sense to use EBP, with participant 12 stating, “It makes sense to me. I can’t truly sit here and think about working anywhere where they don’t use evidence-based because then what are they basing it off of?” For these participants, using EBP was the most logical option for treating patients and they couldn’t imagine any other way.

There were also interpersonal subthemes that emerged throughout the interviews. The first was providing the best patient care, and the role EBP plays in that. While being interviewed, many participants stated that they were providing better care to the patients they see and that was evident from the treatments patients receive and the care being provided. Participant five said, “The results I get in the clinic. Because using evidence-based like it, it’s actually resulting in my athletes getting that better treatment, and in a lot of cases, improving their care.” Using EBP has also resulted in improved relationships with coaches, athletes, parents, and other staff, and better communication with those individuals. Participant eight said:

> More support from coaches and parents. When you have something to show them going hey this is what the research says. Even if it seems a little weird or off, the parents are more willing and the coaches are more willing to give it a shot just because hey there’s research on this, let’s trust them that they know what they’re talking about.

Another interpersonal subtheme was discussed that EBP helps get athletes back on the field with quicker return to play. Participant four, when discussing return to play said, “I’m actually noticing, so going off of the ice example, I’m noticing an increase in my athlete’s ability to return to play, and their pain levels.” Finally, EBP provides protection by keeping up with best practices to avoid legal issues. Participant three said:

> This is the best research that we have on the topics and using that research most likely we are on the safer side and we’re not going to get into, really, I don’t wanna say trouble, not doing certain things, compared to using the latest research. And, kind of staying safe on that side of things.

Balancing components of EBP. The final theme that emerged from the data was balancing components of EBP. When implementing EBP it is important to recognize the three components of evidence-based medicine. Participant two said, “In grad school was really when I was kind of was presented the, you know, the three kind of prongs of it, and how they should all be considered equally and, that was kind of ingrained in me then.” Finding a way to use patient values, clinical expertise, and research to maximize treatments and provide the best patient care is important. Balancing the three components of EBP is unique to each clinician. Participant seven said:

> I think the cool thing about evidence-based practice is the idea that there’s just not one thing driving it. And so, the idea that, patient-centered care should be one of the components within utilizing new evidence, and utilizing the best care possible, I think is a different approach to medicine.

There are three subthemes under this overarching theme, and they are the three components of EBP, patient values, clinician’s expertise, and using the best available research.

The first subtheme was clinical expertise. Recognizing and evaluating one’s own personal experiences, education, and past knowledge are part of using EBP. Participant two said, “I don’t think you need much skill for expert opinion. I think that’s being able to self-reflect on what you um have done, and what’s worked, and try to draw parallels from that.” The next subtheme was patient values, with participant 10 saying, “I ask them like how they feel about the way they’re being treated, how they feel like their treatment’s going, how they feel about their program that they’re on, and like the path that they’re on to their recovery.” The patient should play a role in treatment decisions

and the care he or she is receiving. Finally, research plays an important role emerged as a subtheme. Participant 14 said, “I learned how to research, I learned how to read research, I learned the importance of integrating it into clinical practice.” Participants felt that reading, understanding, and properly utilizing research is required for using EBP.

The next chapter will discuss the results of the data analysis, giving meaning to the themes and explaining the findings.

Chapter V

DISCUSSION

To give meaning to the data and explain the findings, part of the theoretical framework, the five stages of the innovation-decision process, was used. The themes developed during data analysis correspond with four of the five stages, and are highlighted below in Figure 11.

Figure 11. The four circled stages of the innovation-decision process will be used as a lens to interpret the data and explain the findings (Adapted from Rogers, 2003).

Five Stages of the Innovation Decision Process as Lens

When interpreting the data and using the five stages of the innovation-decision process, as created by Rogers, the eight themes that emerged in this study fit under four of the stages. Figure 12 lists the four stages with the themes that relate to each stage. The confirmation stage was not found to be associated with any of the themes that emerged during data analysis. Each stage and the corresponding themes will be explained in detail.

Stage of Innovation-Decision Process	Theme
Knowledge	Learning about EBP
Persuasion	EBP is Important for Profession
Persuasion	Healthcare Changes and EBP Helps to Stay Current
Persuasion	Culture of Support
Decision	Barriers to EBP
Decision	Decision Making Backed by Research
Decision	There are Many Benefits to Using EBP
Implementation	Balancing Components of EBP

Figure 12. Using the Five Stages of the Innovation-Decision Process to Explain Themes.

Knowledge stage. The first stage of the innovation-decision process is the knowledge stage. During this stage, individuals are first learning about a new innovation or idea (Rogers, 2003). The theme that was associated with the knowledge stage is learning about EBP. As discussed earlier, participants all learned about EBP through either their formal education, or CE. It was during this time that participants became familiar with what EBP was, the components of it, and how it can be used. Athletic training has attempted to increase the understanding of what EBP is with CE requirements and changes to college curricula, and research has been showing that there is an increase in knowledge (Keeley, et al., 2016; McCarty et al., 2013; Welch et al., 2014b).

Persuasion stage. While the knowledge stage involves an individual learning about a new idea, the next stage, persuasion, is more affective and focused on the person forming an attitude toward the innovation (Rogers, 2003). During this stage, the potential adopter is gathering information about the new idea, and determining how adoption would affect them individually. This stage also involves looking to peers to determine how they feel about the new idea (Rogers, 2003). The themes associated with this stage are EBP is important for the profession, healthcare changes and EBP helps to stay current, and culture of support. After learning about the innovation in the previous stage, this stage is where an individual forms an attitude toward it, which will play a role in the decision to adopt or reject (Rogers, 2003). During the persuasion stage, an individual gathers information about the new idea, and determines advantages to using it (Rogers, 2003). Individuals also look to peers for social reinforcement before deciding (Rogers, 2003). A study by McCarty et al. (2013) showed that 98% of clinicians recognize EBP is important for the profession. The themes EBP is important for the profession and healthcare changes and EBP helps to stay current are associated with the persuasion stage because they are both attitudes toward EBP. Understanding that EBP is important for athletic training and provides the ability to stay current help form an individual form a positive attitude toward EBP which, in turn, makes them more likely to adopt it. The theme culture of support touched on the importance of colleagues and mentors in forming an attitude toward EBP. For participants in this study, social reinforcement from these individuals was very important for establishing a positive opinion toward EBP.

Decision stage. The third stage of the innovation-decision process is the decision stage. At this stage, an individual decides either to adopt or reject the new idea based on the information learned and the attitude that was formed (Rogers, 2003). Many individuals will test out an innovation on a smaller scale before fully committing to it. When deciding whether to adopt EBP, barriers and benefits are weighed (Rogers, 2003). The themes that are associated with this stage are barriers to EBP, decision making backed by research, and there are many benefits to using EBP. Each participant in this study revealed one or more barrier he or she had to overcome to use EBP. Barriers in this study including time, resources, and accessibility have been seen in many other studies (Hankemeier & Van Lunen, 2013; Manspeaker & Van Lunen, 2011; McCarty et al., 2013; Welch, 2014a) The benefits helped participants of this study to make the decision and move to implementation. As the individuals in this study began to use EBP and incorporate it into treatment decisions, they recognized many benefits. These benefits outweighed the barriers and, therefore, a decision was made to adopt EBP and move to implementation.

Implementation stage. The fourth stage of the innovation-decision process is the implementation stage. Implementation occurs after the individual has made a decision to adopt and is fully committed to the new idea (Rogers, 2013). During this stage there is some trial and error to effectively implement the innovation, and some re-invention may occur during this stage where an individual changes or modifies the innovation to meet his or her need (Rogers, 2013). The theme associated with this stage is balancing components of EBP. In this theme, participants discussed taking

EBP and making it their own when incorporating it into clinical decisions and treatments with patients.

The eight themes that emerged from data analysis fit under the first four stages of the innovation-decision process as described by Rogers (2003). The final stage of the process is the confirmation stage, where an individual may continue to seek reinforcement in the decision that was made, or may reverse the decision at this point (Rogers, 2003). While no themes in this study emerged under this stage, it is a possibility for future research. Figure 13 represents the stages and the corresponding themes from this dissertation below.

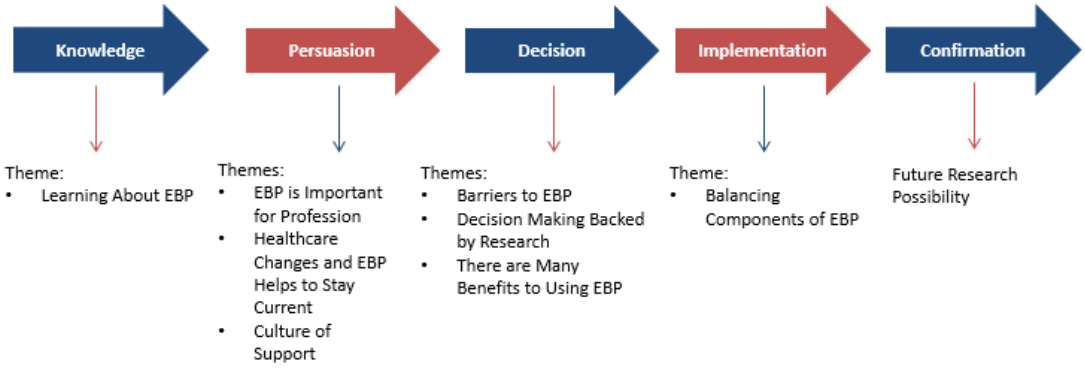


Figure 13. Represents the themes that emerged during data analysis and the associated stage of the Innovation-Decision Process (Adapted from Rogers, 2003).

Moving through the stages. Participants in this study moved through the stages of the innovation-decision process when deciding to use EBP in the clinic. While many participants first learned about EBP during either undergraduate or graduate school, topics were also reinforced with CE and applied learning. After gaining knowledge about EBP, attitudes were formed by looking at support systems to reinforce the idea and determining the importance and advantages of using EBP. These individuals felt that

EBP is important for the athletic training profession as it continues to try to advance in the healthcare world, which has been noted in past research (McCarty et al., 2013). They also felt that EBP is important for healthcare and staying current with changes in best practices. Once an attitude is formed, a decision must be made on whether to adopt or reject an idea (Rogers, 2003). Benefits to using EBP were weighed against the barriers that hinder use. For these participants, the decision was made to adopt EBP because the benefits outweighed the barriers. Participants spoke of specific benefits such as quicker return to play, better relationships with patients and support staff, and more self-confidence as a result of using EBP. Finally, after making the decision to adopt EBP, participants entered the implementation stage, and discussed the importance of balancing the components of EBP to optimize care the patients are receiving. These participants worked through learning about EBP, forming an opinion toward it, deciding, and putting it into actual use. Previous research within the field of athletic training regarding EBP has highlighted the many barriers and noted that participants are still hesitant to use EBP (Keeley et al., 2016; Manspeaker & Hankemeier, 2017). However, this research sheds light on the many benefits of using EBP that real clinicians are experiencing, and the process participants went through in order to adopt it. These benefits and advantages outweighed the many barriers and are the reason participants chose to use EBP.

Research Questions Answered

The research questions were developed from the purpose of the study and the theoretical frame. They helped to create the interview guide and, thus, served to guide

the research. Throughout the interviews, each research question was answered through the process of transcribing, coding, and thematic development.

Research question one. The first research question was what led to using EBP in clinical decision making? Participants discussed different factors that helped them to begin to use EBP when making decisions. In order to use EBP, participants first needed to learn about what it is and how to use it. In this study, most of the participants learned about EBP through formal education or CE. The NATA and CAATE have made changes to the CE requirements and college curricula to ensure that ATs would learn about EBP (Hankemeier & Van Lunen, 2013; McCarty et al., 2013; Welch et al., 2014b). Research prior to these additions indicated that many clinicians did not understand what EBP was and how to use it (Hankemeier & Van Lunen, 2013; McCarty et al., 2013). However, more current research found that there has been an increase in knowledge following these educational interventions (Keeley et al., 2016; Manspeaker & Hankemeier, 2017). While knowledge is usually not enough to change an attitude, this baseline understanding of EBP and its components did help lead to using EBP.

The opinion, or attitude that an individual has toward something also plays an important role and helped lead to using EBP in clinical decision making. Studies have shown that ATs understand that EBP is important for the profession, but clinicians were perceiving it as less important than educators were (Hankemeier et al., 2013; McCarty et al., 2013). Athletic training clinicians were the exclusive participants in this study, and these clinicians did see the importance of using EBP. They felt that it was important for the profession, helped to improve the reputation of athletic training, and was a means to

stay current with research and best practices. All these attitudes helped the individuals in this study to use EBP in clinical decision making.

Finally, support led to using EBP in decision making. Participants in this study who felt they had mentors within the workplace were more likely to introduce the use of EBP. Being able to collaborate with other individuals and receive encouragement when learning about EBP led these participants to use EBP in decision making. Not surprisingly, prior research noted a lack of institutional support as a barrier to using EBP (Dickerson et al., 2015).

Research question two. The second research question developed was how did participants decide to adopt EBP? Participants made the decision to adopt EBP by weighing the positives and negatives. The members of this study discussed both the benefits and the barriers to using EBP. Barriers have been addressed within prior research and ATs have been both surveyed and interviewed regarding these barriers (Manspeaker & Van Lunen, 2011; McCarty et al., 2013; Welch et al., 2014a). The barriers that have been addressed in previous research were also discussed in this study. However, unlike prior research which only discussed barriers, the participants in this study overcame those barriers and decided to adopt EBP. The decision to adopt EBP also involved the benefits to using it.

General benefits to using EBP have been researched and include improved patient care, saving time, and saving money (Welch et al., 2014a). This study investigated participants who were using EBP and, therefore, the benefits discussed were direct benefits each participant has personally experienced. When making the decision to adopt EBP, the benefits perceived from using EBP are weighed against the

barriers. As participants began to use EBP when making treatment decisions, they found ways to overcome the barriers and felt there were more benefits to using it.

Research question three. The final research question was what are the perceived benefits of using EBP? Benefits to using EBP played an important role in making the decision to adopt EBP, and they were discussed in detail with each participant. Because participants in this study were already using EBP, each of them was asked about the personal benefits they felt had come directly from adopting EBP. The benefits discussed were numerous, and included benefits for the individual clinician, for the workplace, and for the patient. Benefits have been broadly touched on in prior research, but this is one of the first studies within the field of athletic training that allowed participants to discuss in depth about the benefits he or she felt were related to EBP use (Keeley, 2016). Overall, participants felt EBP benefitted their ability to provide improved quality of care, promote return to play for patients, and enhance communication skills.

Shifting the Culture

While future research may help to reinforce the ideas from this study, the information gained throughout this research can help to shift the culture of athletic training more toward EBP. Adult learners have been studied, and research shows that an adult is more likely to respond to a new topic if he or she understands why it is important and how it can directly impact their life (Knowles, 1973; Leigh, Whitted, & Hamilton, 2015; Taylor & Hamdy, 2013). Once an adult learner understands how a new concept or idea is going to impact them personally or professionally, there is a higher chance they will invest time into that new idea (Knowles, 1973). Prior to this study, most

of the research regarding EBP has been problem centered, and focused on the barriers to using EBP, and reasons why clinicians are not using it (Carr et al., 2015; Hankemeier & Van Lunen, 2013; McCarty et al., 2013). While, barriers to employing EBP has been well established in the literature, suggestions to overcome these barriers have not been offered.

In recent years, EBP has been added to college curriculum and CE requirements (Board of Certification, 2018a; Welch et al., 2014a). Research following these additions has shown that athletic trainers are increasing knowledge about EBP, but there is still a knowledge to practice gap (Keeley et al., 2016). In order to shift the culture of athletic training to one that is more readily accepting of and using EBP, solutions to overcoming barriers preventing use are necessary. The themes from this study, and the information provided by the participants who have adopted EBP show solutions to increase utilization.

Participants in this study were more likely to adopt EBP if they recognized the tangible benefits it offers. Similar to the principles of a typical adult learner, these individuals were more inclined to use EBP because it was immediately and positively impacting them professionally and personally. Marketing the benefits from real ATs who are speaking from personal experience may help other individuals see that EBP can also be useful for them. Furthermore, the findings from this study support that both workplace support and mentorship helps increase utilization. Providing networks at the national and regional level that provide support for EBP utilization and a platform for individuals to find solutions can help push those resistant to change. Research is showing that knowledge is increasing from the educational strategies that have been

put into action, but now is the time to move from simply educating individuals on what EBP is, to providing strategies for application. Only through an increase in use and application will the culture of athletic training shift to truly embracing EBP.

Chapter VI

Conclusion

In order for a new innovation or idea to be successful, the targeted population must adopt and use that idea (Rogers, 2003). Athletic training, like many other health professions, has been pushing EBP use by adjusting what students are learning in colleges, and what practicing athletics trainers are required to complete for CE (Welch et al., 2014a). These initiatives have shown an increase in the knowledge of EBP among ATs (Keeley et al., 2016). However, despite the increase in understanding, there is still a knowledge translation gap.

A qualitative study, utilizing in depth one-on-one interviews was selected as the methodology for this study to truly gain a deeper understanding into how the participants decided to adopt and use EBP. Qualitative research is conducted to understand how something happened, why it happened, and is exploratory in nature (Durdella, 2018; Patton, 2002). This type of methodology was selected in order to get an in depth understanding of the phenomena being studied (Durdella, 2018). The purpose of this study was to understand the decisions involved in EBP adoption by ATs. It was exploratory in nature, with the goal of understanding in depth both why an individual decided to adopt EBP and how he or she made that decision.

Participants in this study were all using EBP because they found benefits to using it. They felt that it made them better clinicians, made them more confident, improved the care the patients were receiving, and improved communication with coaches, coworkers, and patients. They also felt that EBP is important for the

profession as a whole and is a practical way to keep up with best practices and current research. While each participant adopted EBP in their own way, and on their own terms, support from mentors, educators, and colleagues played an important role in their decision to adopt. This information provided practical implications for the profession of athletic training as it continues to embrace and promote the adoption of EBP.

Practical Implications

Much of the current research has looked at barriers to using EBP, but this study focused on participants who are using EBP to understand how they made that decision. Understanding how a participant decided to adopt EBP and why they continue to use it is important because adult learners are more likely to embrace a new idea if they understand how it is going to directly benefit them professionally or personally (Knowles, 1973). Investigating a group who is using EBP provides the opportunity for others to learn from them, which may increase utilization. For ATs who are still struggling to use EBP, seeing others who are using it, understanding how they decided to adopt it, and the benefits they are receiving from EBP may motivate their use.

Furthermore, solutions and strategies to overcoming the barriers that are still being presented in the research should be provided by the governing bodies. Providing practical solutions and ways to implement EBP may help to bridge the knowledge to practice gap. Research has shown that knowledge is increasing, but there is still little change in use (Manspeaker & Hankemeier, 2017). Continuing education can be developed that focuses on ways to successfully implement EBP into decision making and treatments. Rather than simply educating athletic trainers on what EBP is and letting them figure out how to implement it on their own, the profession can take more

ownership and provide strategies for application. With real strategies to overcome barriers and apply EBP, clinicians may see the direct benefits and begin to adopt EBP.

Finally, support for ATs can help to motivate EBP use. The national organization overseeing athletic training is the NATA, but the country is also made up of regional and state associations that fall under the NATA. Utilizing both the NATA and the regional and state associations to provide mentoring and EBP support could be beneficial. Investigating ways to provide a networking and support system to clinicians who are trying to adopt EBP may make them more likely to adopt it. Participants in this study that had support in the workplace with colleagues, or mentors that promoted the use were more inclined to use it. This research found many implications to both clinicians and the profession of athletic training as a whole, as a means to continue to promote and diffuse EBP evidence-based practice into the profession.

Limitations

There were limitations to this study, as there are with any study. First, the sample was a convenience sample. Participants were recruited through Facebook alumni pages, and therefore the sample was one of convenience. Additionally, all data was self-reported. Data was collected in two steps, with a prescreening survey for general demographic information and use of EBP, and the in-depth one-on-one interviews. All of this information was provided directly from the participant with no way to truly verify it. Finally, there was more representation from females than males. Thirteen of the 15 participants in this study were female, which is higher than the national average as reported by the NATA. Therefore, this information may not be as representative of

males then it is of females. Lastly, due to the limited sample, the results are not generalizable beyond the sample used within this study.

Future Research

Based on the findings of this study, there are several avenues for future research. This study found themes that aligned with the first four of the five stages of the innovation decision process; representing knowledge, persuasion, decision, and implementation. Follow up interviews could be completed with the current participants on continued EBP use with questions into the confirmation stage. Additionally, this study found many perceived benefits from using EBP. Further research could be conducted that continues to explore those benefits to gain a greater understanding of them, or even quantify the subthemes. Research could be conducted that differentiates clinicians by frequency of use. This study included anyone that indicated they were using EBP at least once a month, however being more exclusive and investigating a group of high users or a group of low users may provide different insight. Additionally, support played an important role in many participants decision to adopt EBP. Research looking into knowledge brokers, similar to those found in physical therapy could provide insight on provide support. Finally, overcoming barriers was touched upon in this study, with a question asked about what barriers needed to be overcome to use EBP, but a deeper understanding of how participants actually overcame those barriers may provide more information for future continuing education and application strategies.

Summary

This research provided practical benefits and ways to implement EBP into clinical decision making. Participants in this study were using EBP despite the barriers because they recognized both the importance of it, and the benefits to using it. Athletic training has been pushing EBP into the profession through the inclusion of CE requirements and curriculum changes. While this is increasing knowledge, more needs to be done to move to application. Creating new CE to help with the implementation of EBP can help clinicians overcome barriers and meaningfully use EBP. Support was discussed throughout this study as very important for EBP use. Providing support networks can help ATs who are still struggling to use EBP. The profession and national organizations have been doing a lot to increase EBP knowledge, but barriers are still hindering use (Manspeaker & Hankemeier, 2017). Future research on overcoming barriers and strategies to implementation will be valuable to increase adoption. Providing strategies for ATs who are struggling to overcome those barriers and meaningfully use EBP may help to increase utilization and shift the culture of athletic training to one that truly embraces EBP.

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APPENDICES

Appendix A. Seton Hall University IRB Approval

SETON HALL UNIVERSITY
1 8 5 6

July 30, 2018

[redacted]

Dear Ms. Allard,

The Seton Hall University Institutional Review Board has reviewed the information you have submitted addressing the concerns for your proposal entitled "Exploring the Decisions Involved in Evidence-Based Practice Adoption by Athletic Trainers". Your research protocol is hereby approved as revised through expedited review **until May 7, 2019**. The IRB reserves the right to recall the proposal at any time for full review.

Enclosed for your records are the signed Request for Approval form and the stamped original Consent Form. Make copies only of these stamped forms.

The Institutional Review Board approval of your research is valid until May 7, 2019. During this time, any changes to the research protocol must be reviewed and approved by the IRB prior to their implementation.

According to federal regulations, continuing review of already approved research is mandated to take place at least 12 months after this initial approval. You will receive communication from the IRB Office for this several months before the anniversary date of your initial approval.

Thank you for your cooperation.

In harmony with federal regulations, none of the investigators or research staff involved in the study took part in the final decision.

Sincerely,

Mary F. Ruzicka, Ph.D.

Mary F. Ruzicka, Ph.D.
Professor
Director, Institutional Review Board

cc: Dr. Michelle D'Abundo

Office of Institutional Review Board
Presidents Hall • 400 South Orange Avenue • South Orange, NJ 07079 • Tel: 973.313.6314 • Fax: 973.275.2361 • www.shu.edu

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Appendix B. Prescreening Tool

Part 1. Evidence-based Practice Definition and Use

Please answer the questions below without using any outside resources and as honestly as possible.

1. Do you know what evidence-based practice is?

- Yes
- No

2. How would you define evidence-based practice?

_____

3. Are you using evidence-based practice when making clinical decisions?

- Yes
- No

4. On average, how many times in the last month did you use evidence-based practice when treating patients?

- Zero
- 1-3
- 4-5
- 6-7
- 8 or more times

Part 2. Demographic Information

1. How old are you? _____

2. What is your gender?

- Male
- Female
- Other
- Prefer Not to Answer

3. What is your highest degree held?

- Bachelor
- Masters
- Doctorate

4. What was your undergraduate degree in? _____

5. What year did you graduate with your athletic training degree? _____

6. Did you learn about evidence-based practice in college?

- Yes
- No

7. How many years have you been practicing as an athletic trainer? _____

8. What setting do you practice as an athletic trainer? (High school, college, hospital, etc) _____

9. Which NATA district do you currently work in? _____

Thank you for completing the questionnaire. Please provide your name, best phone number, and email address and if you meet the criteria, you will be contacted to complete to schedule an interview.

Name and Contact Information: _____

Appendix C. Interview Guide

1. How would you define evidence-based practice?
    a. In terms of this study, we define evidence-based practice as: “the integration of clinical expertise, patient values, and the best research evidence into the decision making process for patient care. The first component, clinical expertise, refers to the clinician’s cumulated experience, education and clinical skills. The second, the patient, brings to the encounter his or her own personal preferences and unique concerns, expectations, and values. The third is best research evidence and that is usually found in clinically relevant research that has been conducted using sound methodology.

2. How did you first learn about evidence-based practice?
    a. What were your initial thoughts about it?

3. What characteristics of evidence-based practice appeal to you?

4. What skills were necessary before you decided to begin using EBP?

5. What played a role in your decision to adopt EBP?
    a. How did the EBP continuing education play a role in your decision?

6. How has EBP changed your clinical practice?

7. Give an example of how you use evidence-based practice

8. What benefits have you experienced when using EBP in clinical decision making?

9. What barriers did you have to overcome to implement EBP into clinical practice?
    a. Give a specific example of how you overcame one of them

10. What motivates you to continue using EBP?

11. What else would you like to add?

Appendix D. Letter of Solicitation

Dear Certified Athletic Trainer:

My name is Brittany Allard and I am a doctoral student at Seton Hall University in the School of Health and Medical Sciences. As part of my degree requirements, I am completing my dissertation titled “Exploring the Decisions Involved in Evidence-Based Practice Adoption by Athletic Trainers.”

The purpose of this study is to explore the decisions involved in evidence-based practice adoption by practicing athletic trainers.

This is a qualitative study and I will be interviewing participants who meet the inclusion criteria. Interviews should take approximately 60-90 minutes to complete. Prior to the interview, there is a prescreening tool that must be completed, and the link is provided below. When you click the link for the survey, you will be prompted with a letter of consent to read through. If you agree to participate, then you will be brought to the prescreening tool.

If you meet the inclusion criteria and are interested in participating, I will be contacting you to schedule your interview. As a certified athletic trainer your insights regarding how you decided to use evidence-based practice are invaluable. If you know any other certified athletic trainers who may meet the criteria and be interested in participating it would be greatly appreciated it if you would forward this email including the link to my prescreening tool along.

Your participation in this study is completely voluntary and you may decide to withdraw from the study at any time without penalty.

Your privacy is important and measures will be taken to ensure your anonymity. A code name will be assigned following the completion of the prescreening survey and demographics, and that code name will be used throughout the interview. Personal names will not be used to identify participants and no identifying information will be used in any reports or publications about this study.

The interview will be audio-recorded, and those recordings will be stored in a locked cabinet in the office of the Principal Investigator, Brittany Allard. All interviews will be transcribed by the Principal Investigator, and the transcriptions will be stored on a password protected USB in the same locked cabinet. Any printed transcriptions will also be locked away. The Principal Investigator will have access to all the data for a period of three years. After three years, all data will be destroyed. It must also be noted that because surveys are being completed online, there is a possibility of hacking online material.

If you have any questions concerning this study, or your rights as a participant, please contact me, the Principal Investigator, at Brittany.allard@student.shu.edu.

If you would like to proceed to the letter of consent and the prescreening survey, please click the link below.

Hyperlink to Qualtrics Survey

Thank you for your time and consideration,

Brittany Allard, MS, ATC

Appendix E. Day of Interview Script

Hello and thank you for taking the time to participate in my doctoral study. Before we begin the interview I would like to provide a brief introduction of both myself and our discussion today.

My name is Brittany Allard and I am a doctoral student at Seton Hall University in the School of Health and Medical Sciences. I am a certified athletic trainer, and I am completing this research study as part of my graduation requirements for my PhD in Health Sciences.

Over the last several years, athletic training has been incorporating evidence-based practice into college curriculums and continuing education to increase utilization among practitioners. Research is showing that despite an increase in knowledge about evidence-based practice, there is still a knowledge to practice gap. The purpose of this study is to understand the decisions involved in evidence-based practice adoption. I am focusing on participants who are using evidence-based practice to understand what factors played a role in that decision. I will be asking about how you decided to begin to use evidence-based practice, what aided in those decisions, and why you continue to use it. Some questions may ask you to recall how you first felt about it, and others may ask about present time.

If at any point in the interview you no longer want to continue, please let me know. There is no penalty if you decide you do not want to complete the study. Do I have your permission to continue with the interview and record it?

Before I begin with the interview do you have any questions?

Appendix C2 provides the Interview Guide for Decisions Involved in Evidence-based Practice Adoption for Questions #1-11 that will be asked.

Question #1 will be asked.

Then the definition of evidence-based practice will be provided (See Appendix C2).

Questions 2-11 will be asked.

Conclusion

Thank you for taking time to participate in my study. Would you be willing to be contacted to look over your transcription to ensure accuracy?

Before we conclude, do you have any last comments or questions for me?

Again, thank you very much. Your responses will remain confidential. Your name and contact information will not be used in any reports or publications. If you have any questions or concerns about your participation please feel free to contact me.