

Athletic Trainers' Perceptions of Advanced Clinical Practice: Characteristics of Advanced Practice Athletic Trainers

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Context: The “Strategic Priorities for Athletic Training Education” promote the development of clinical specialists and advanced practice leaders; however, little is known about the characteristics of advanced practice athletic trainers. Peer health professions have formal education and training programs and specialized credentials to denote advanced practice clinicians; however, such mechanisms are only now emerging in athletic training. As training and credentialing programs advance, it is important to understand the perceived characteristics of clinicians engaged in advanced clinical practice.

Objective: To explore how athletic trainers perceive the characteristics of clinicians advanced practice clinicians.

Design: Cross-sectional.

Setting: Self-reported online survey.

Participants: Of 1992 athletic trainers invited to participate, 350 accessed the survey (17.6% access rate); 321 respondents completed at least 1 open-ended question, and 196 completed the entire survey (61.1% completion rate).

Main Outcome Measures: Consensual qualitative research approach consisting of a 3-person team was used to analyze the open-ended responses. Members individually coded the initial set of responses and then met to develop a consensus codebook. Remaining responses were coded by 2 team members and were confirmed by the third member. Data were organized into themes and categories, and frequency counts were used for each category.

Results: Four categories of characteristics associated with advanced practice clinicians emerged: (1) intrapersonal skills, (2) interpersonal skills, (3) discipline specific knowledge and skills, and (4) experience.

Conclusions: Intrapersonal skills including lifelong learning, critical thinking, and willingness to mentor others were identified, in addition to strong communication and leadership skills. Discipline-specific knowledge and skills were also associated with advanced clinical practice, including specialized skills and advanced integration of the core competencies. Accredited Athletic Training Residency programs and Doctor of Athletic Training programs should strive to foster these characteristics within their students to facilitate the development of advanced practice athletic trainers.

Key Words: Advanced clinical practice, core competencies, specialization

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KEY POINTS

- Intrapersonal skills of lifelong learning, critical thinking, and dedication to the advancement of athletic training are associated with advanced practice clinicians.
- Advanced practice clinicians are perceived to possess strong interpersonal skills of communication and leadership.
- Advanced practice clinicians are associated with discipline specific knowledge and skills gained through formal education and training beyond their professional program.

INTRODUCTION

The current strategic priorities for athletic training education promote the development of clinical specialists and advanced practice leaders¹; however, little is currently known about the characteristics of clinicians who possess these higher levels of competency and proficiency. Recently, efforts have been made to determine how athletic trainers define *advanced clinical practice*,² and a formal definition of this term has been adopted by the strategic alliance³:

Advanced clinical practice is a level of athletic training practice that uses extended and expanded skills, experience and knowledge in assessment, planning, implementation, diagnosis and evaluation of the care required. Athletic trainers practicing at this level are educationally prepared at the postprofessional level with advanced education and training within athletic training and may work in either a specialist or generalist capacity.

The mechanisms for achieving the strategic priorities include the postprofessional educational pathways of Accredited Athletic Training Residency programs, designed to create clinical specialists, and Doctor of Athletic Training (DAT) programs, which focus on development of advanced practice leaders. However, unlike peer professions, who use formal training and education programs coupled with specialty certification to recognize advanced clinical practice,^{4–6} these mechanisms are just now beginning to emerge in athletic training. As athletic training residency programs and DAT programs continue to grow it is vital that the athletic training profession clearly identify the characteristics of advanced practice clinicians in order to inform the educational preparation of these individuals. Therefore, the purpose of this study was to qualitatively explore how athletic trainers from diverse settings perceive the characteristics of clinicians engaged in advanced clinical practice. Through this study we hoped to identify specific characteristics associated with athletic trainers engaging in advanced clinical practice in order to further inform the educational outcomes of postprofessional programs seeking to develop clinical specialists and advanced practice leaders.

METHODS

Design

The design of this study consisted of a cross-sectional survey. The purpose of the survey was to explore athletic trainers' perceptions of advanced clinical practice as well as to describe the characteristics that an athletic trainer who engages in advanced clinical practice should possess. The survey consisted of open-ended questions to allow us to gain insight into participants' theories and lived experiences on the topic, and this study was approved as "exempt" research by the A.T. Still University Institutional Review Board.

Participants

Athletic trainers were recruited to participate in this study if they met all 3 of the inclusion criteria—they were (1) certified, (2) in good standing with the National Athletic Trainers' Association (NATA), and (3) practicing in the college/university, secondary school, or clinic setting within the United States during the period of data collection. The college/university, secondary school, and clinic settings were selected because they represent the top 3 settings in which athletic trainers practice. Contact information for 2010 athletic trainers who met the inclusion criteria was purchased from the NATA office via the survey list request form. In an attempt to recruit participants equally across the 3 clinical practice settings, the list of 2010 potential participants consisted of 670 email addresses per setting. Response rates and the demographics of the athletic trainers who responded to the survey were described in an earlier study.²

Instrumentation

To explore athletic trainers' perceptions of advanced clinical practice, we developed a brief 13-item survey, which was hosted in the Qualtrics platform (Qualtrics LLC, Provo, UT). Of the 13 items, 9 items were demographic in nature and 4 items were open-ended questions designed to gain in-depth insight into the athletic trainers' perceptions. After survey development, the research team conducted a validation and pilot-testing process, which has been previously described.²

Procedures

The research team contacted all 2010 potential participants who met the inclusion criteria using a recruitment letter via email. The recruitment letter included the purpose of the study, the estimated time of completion (ie, 10–15 minutes), and a URL link to the online survey. Data collection occurred over a 4-week period beginning in February 2015; individuals who had not yet completed the survey were sent a maximum of 3 reminder emails. Because of the exempt nature of the research, participant consent was implied upon voluntary completion of any of the survey items.

Data Analysis

Because of the voluntary nature of survey research, it is common that participants do not complete all items of a survey or do not complete the survey in its entirety. To combat this issue, partial data analysis techniques are frequently employed. For this study, all participant responses were included so long as the participant responded to at least one open-ended survey item. Descriptive statistics (mean, standard deviation, frequency) were used to characterize participants' responses to the demographic items. The consensual qualitative research (CQR) tradition was used to guide the qualitative analysis of responses provided to the 4 open-ended survey items. The CQR tradition is commonly used in athletic training research; it includes components of grounded theory, phenomenology, and narrative analysis to fully explore participant theories and lived experiences of a topic. A detailed description of the phases of data analysis for this study was provided in a previous study.²

RESULTS

Data analysis via CQR revealed 2 themes: the perceived definition of advanced clinical practice in athletic training and the perceived characteristics possessed by advanced practice athletic trainers. In this article, we focused only on the perceived characteristics that athletic trainers who engage in advanced clinical practice should embody.

Advanced Clinical Practice Characteristics

During data analysis, 4 categories emerged in terms of participants' perceptions of advanced clinical practice characteristics: intrapersonal skills, interpersonal skills, discipline-specific knowledge and skills, and experience. The frequency of participant cases per category is displayed in the Table.

Intrapersonal Skills

The intrapersonal skills category emerged from 112 participant responses related to the specific internal characteristics an advanced clinical practice athletic trainer should possess. Several participants noted that advanced practice clinicians should possess a desire for lifelong learning and openness to new ideas and approaches. One participant commented, "an individual engaging in advanced clinical practice should always be trying to advance their education and knowledge, but should not step 'out of bounds' when it comes to patient care." Similarly, another participant stated, "an advanced practitioner should have the drive to continue their education and learning for life." A third participant noted,

This type of individual should possess a willingness to always learn more, be open to more suggestions and means of care beyond the athletic trainer or overseeing physician, and a lack of ego, meaning they are always willing to accept information from anyone, regardless of age or skill level.

Participants also discussed the importance of critical thinking. One participant described that an advanced practice clinician should

...be able to think outside of the box and be willing to try different approaches to find the best solution. Basically, they should have strong analytic and critical thinking skills.

Table. Participant Cases by Category

Category	Frequency	No. of Participant Cases
Intrapersonal skills	Typical	112
Interpersonal skills	Variant	78
Discipline-specific knowledge & skills	Typical	139
Experience	Rare	16

Another participant remarked,

...an advanced clinical practitioner should possess a highly refined skill of reasoning. They should have the capability to make quick, complex, and logical medical decisions, drawing from a background of professional-level medical knowledge.

A third participant similarly commented,

Critical thinking is an important part of advanced practice. You must be able to adapt the knowledge and skill you have to the patient. Which means, you have to take treatment theory and apply it in non-traditional ways sometimes. Or you must think through an injury because there is no special test for the injury or you are not sure what to do.

Finally, participants also described that advanced practice clinicians should possess the desire to mentor others and advance not only themselves but also the athletic training profession. Participants remarked how advanced practice clinicians should "want to share his or her knowledge with others in the field" and should possess "the desire to mentor and educate." One participant expressed that these individuals should "have the desire and drive to be the best athletic trainer possible and to strive to better the profession as a whole."

Interpersonal Skills

Participants also discussed a variety of interpersonal skills that they felt an advanced practice athletic trainer should embody. This category emerged from 78 participant responses that focused on the actions occurring between the advanced practice athletic trainer and others. One of the main interpersonal skills noted by participants was the importance of communication with others. Several participants mentioned that an advanced practice clinician should be a "good listener," "effective communicator," and "be able to empower patients." One participant noted, "they should be able to easily relate to patients and gain their trust." Similarly, another participant remarked, "most importantly, I think this person must be able to interact well with the patient population and effectively communicate information in a way to help [a patient] understand their current situation." A third participant stated, "other characteristics include successful interaction with health care professionals beyond his or her own training, and the ability to include the patient in all clinical decisions."

In addition to communicating with others, participants also discussed the importance of leadership and the ability to lead others as an interpersonal skill. Participants remarked that an advanced practice clinician should be an "engaging leader who is willing and eager to share their knowledge" and "should possess excellent leadership qualities." One partici-

pant commented, “this type of individual should have the ability to lead by example in the workplace and mentor others in the profession for overall improvement of patient care and athletic training in general.”

Discipline-Specific Knowledge and Skills

In addition to describing the intra- and interpersonal skills an advanced practice clinician should embody, our participants also described discipline-specific knowledge and skills this individual should possess. The discipline-specific knowledge and skills category emerged from 139 participant responses and detailed specific knowledge and/or skills related to athletic training that would further characterize someone who is an advanced practice clinician. Some participants described a more global set of knowledge and skills related to a specific specialty or content area. One participant commented, “they should have advanced knowledge and skills in a particular content area that can be utilized to enhance patient care and progressions.” Another participant stated, “they should have a higher level of knowledge and specialty that allows them to perform tasks that someone with a basic level of knowledge would not be able to do,” while a third participant noted “they should be up-to-date on all the newest research and techniques in their area of specialty.”

Other participants described the importance of the role of research and critical appraisal for advanced clinical practice. One participant commented, “I think an advanced clinical practitioner would need to have honed research skills, especially understanding research,” while another participant remarked, “a practitioner engaging an advanced clinical practice should possess the ability to articulate evidence/established literature supporting their clinical decisions.” Another stated,

The advanced practitioner should possess the characteristics of advanced knowledge and clinical skills in the domains of athletic training. They should understand and utilize evidence-based practice based on best available evidence, clinical expertise and patient values. The individual should also possess characteristics of professionalism in their clinical setting, and use sound methods within their patient education, standard operating procedures, and state practice acts.

A majority of participant responses in the discipline-specific knowledge and skills category identified specific topic areas in which an advanced practice clinician should be highly knowledgeable. These topic areas included, but were not limited to, manual techniques, better approaches for patient care documentation, cultural competence, and a strong understanding of CPT codes, billing, and insurance structures. One participant listed a variety of knowledge and skill areas by commenting,

An advanced practitioner should have sound evaluation skills and a strong manual therapy skill set. They should possess knowledge of various assessment and injury screening options and be up-to-date on current sport medicine practices. They should be able to combine practice-based experiences with evidence-based research, have access to and knowledge of various diagnostic tools.

Similarly, another participant stated,

I believe that [advanced practice clinicians] should have a more in-depth understanding of the injuries, pathologies, and tools and instruments used in injury prevention, evaluation, and treatment. They should be knowledgeable of the interrelatedness of the health care professions and that their knowledge would include an ability to apply that understanding in a variety of practice settings. I also believe that an advanced practice athletic trainer should have some specialty skills that may not have been covered extensively in their entry-level training, such as but not limited to treatment, dealing with insurance, leadership/administrative training, and advanced communication skills.

Experience

While the majority of participant responses focused on knowledge or skills that an advanced practice athletic trainer should possess, a small subset of participant responses ($n = 16$) associated the amount of experience an athletic trainer had with advanced clinical practice. Several of these participant responses indicated that an athletic trainer who embodies the characteristics of advanced clinical practice should have “at least 5–10 years of clinical experience.” Two participant responses went on to further clarify that an advanced practice athletic trainer should have “at least 5 years of actual patient experience” and “more than 5–10 years as an athletic trainer on the field.” One participant response specified that this type of individual should have “at least 10 years of experience,” while another participant response indicated that an athletic trainer who is considered an advanced practice clinician is “someone who works within a clinic or hospital setting alongside other medical professionals.”

DISCUSSION

The purpose of this study was to explore how athletic trainers perceive characteristics of clinicians engaged in advanced clinical practice. The emergence of postprofessional pathways for the development of clinical specialists and advanced practice leaders has led to an increased need to clearly define advanced clinical practice in athletic training, as well as a need to identify the specific characteristics of advanced practice clinicians. The results of our study identified several broad categories of perceived characteristics of advanced practice clinicians, which appear to align with the definitions of advanced clinical practice^{2,3} and the strategic priorities for athletic training education.¹

Personal Attributes

Within the broader category of personal attributes, intrapersonal skills were identified as a typical response. Participants who identified intrapersonal skills included characteristics of lifelong learning, critical thinking, and a dedication to advancing the profession associated with advanced practice clinicians. These characteristics appear to align well with the current definition of advanced clinical practice, in which clinicians are trained at the postprofessional level with advanced skills in either a specialized or generalist capacity.^{2,3} Dedication to lifelong learning, critical thinking, and a desire to advance the profession are likely key factors associated with an athletic trainer's decision to pursue postprofessional education in an accredited residency program or DAT program. This is supported by Mulder et al,⁷ who reported that DAT students chose to pursue their degree based on

specific personal motivators of lifelong learning, advancement of the profession, and mentoring, among other reasons. Similar to our findings, advanced practice clinicians in physical therapy have been found⁸ to pursue professional development and leadership activities at a greater rate than do peers who do not seek postprofessional training to achieve advanced clinical practice.

Our findings of critical thinking as a characteristic associated with advanced practice athletic trainers also align with the arena of physical therapy, in which a structured clinical reasoning process has been identified⁹ as a key dimension of expert practice. Similarly, these findings are also supported by previous research in athletic training, examining characteristics of “quality” athletic trainers. Raab et al¹⁰ identified the personal characteristics of care, commitment, and integrity that contribute to a quality athletic trainer. It appears that these intrapersonal attributes may be inherent within athletic trainers and serve as motivators for pursuit of postprofessional training and education to learn specialized skills or to develop as an advanced practice leader. Regardless of whether these characteristics are inherent or learned, postprofessional education programs should recognize these characteristics of advanced practice clinicians and strive to foster their development and maintenance within their students.

The development of advanced practice leaders is one of the strategic priorities for athletic training education, so it is fitting that one of the categories that emerged was interpersonal skills, and specifically the ability to communicate well with others and serve as leaders of the profession. Despite this category being classified as “variant,” communicating with others and leadership abilities have long been considered desirable characteristics of athletic trainers and allied health professionals.¹¹ Given the significant changes that are occurring within athletic training education and the global health care system, advanced practice leaders are needed to ensure the profession continues to move forward.¹² Understanding the importance of personal attributes in the development of advanced practice clinicians is important, and both residency programs and DAT programs that seek to develop advanced practice clinicians should work toward developing these characteristics in their students.

Professional Attributes

The primary category that emerged within professional attributes was related to discipline-specific knowledge and skills. Within this category, participant responses closely align with both the new definition of advanced clinical practice^{2,3} and the current mechanisms available for athletic trainers seeking postprofessional training. Accredited residency programs are specifically designed to provide athletic trainers specialty training in a focused area of athletic training practice¹³; this closely aligns with participant responses that perceived advanced practice clinicians as having specialized skills and knowledge in athletic training. Additionally, participants associated advanced skills related to the specific core competencies of evidence-based practice, patient-centered care, quality improvement, and professionalism as characteristics of advanced practice clinicians. Both the *Standards for the Accreditation of Post-Professional Athletic Training Residency Programs*¹³ and the *Standards for the Accreditation of Post-Professional Athletic Training Degree Programs*¹⁴

require the integration of the athletic training core competencies throughout their programs, and the core competencies are integral components of all existing DAT programs.¹⁵

Also included in the professional attributes category were responses related to experience. Although this category emerged as rare, 16 participants associated advanced practice clinicians with years of experience. This small number aligns with results previously reported² on how athletic trainers define advanced clinical practice, with a very small number identifying years of experience as a key factor.

Collectively, the results of our study help to inform the primary characteristics that athletic trainers associate with advanced practice clinicians. The combination of intrapersonal skills, interpersonal skills, discipline-specific knowledge and skills, and experience provides a framework within which postprofessional programs can facilitate the development of advanced clinical practice.

In addition to better defining and understanding advanced clinical practice, the profession needs to examine optimal ways to objectively measure advanced clinical practice in athletic training. The newly developed AT Milestones¹⁶ represent such a measure, and they closely align with many of the perceived characteristics of advanced practice athletic trainers.

The AT Milestones include 6 general competency areas that span the breadth and depth of athletic training knowledge, skills, attitudes, and behaviors.¹⁶ Within each of these competencies, specific behaviors are identified that represent athletic training practice, spanning from the novice student (level 1) to the expert clinician (level 5). A level 4 milestone denotes advanced clinical practice, and many of the level 4 and 5 competencies include the same characteristics of advanced clinical practice that were identified by our participants. For example, level 4 behaviors within the Milestones often include role modeling specific areas of clinical practice, serving as a local or professional leader, or advocating for patients or the profession.¹⁶ These personal and professional attributes align well within the definition of advanced clinical practice and represent a common mechanism with which to begin to assess the educational outcomes of postprofessional training and education.

Limitations and Future Research

This study has some limitations that must be acknowledged. Because we used a survey approach for this study, the ability of participants to self-select their participation creates an inherent bias. We limited our survey to athletic trainers practicing in the college/university, secondary school, and clinical settings, potentially failing to capture perceptions of athletic trainers from other practice settings. Additionally, several significant changes within athletic training occurred during the time from data collection to publication, including the emergence of multiple DAT programs and additional accredited residency programs. Therefore, it is possible that participants may respond differently after these changes. This study focused on the perceptions of athletic trainers on characteristics of advanced practice clinicians; future research is needed to confirm the actual characteristics that advanced practice clinicians possess. Additionally, research that examines the effectiveness of the postprofessional educational

pathways of accredited Athletic Training Residency Programs and DAT programs in developing clinical specialists and advanced practice leaders is necessary, as is research that investigates the effectiveness of the AT Milestones as a means by which to measure advanced clinical practice in athletic training.

CONCLUSIONS

Through this study, we identified specific personal and professional attributes that athletic trainers from a variety of settings associate with advanced practice clinicians. These characteristics correlate closely with previously reported perceptions of advanced clinical practice and align well with current strategic priorities for athletic training education and available postprofessional pathways for developing clinical specialists and advanced practice leaders. With a new definition of advanced clinical practice from the Athletic Training Strategic Alliance, identified characteristics for advanced practice clinicians, and a way to measure development of athletic training knowledge, skills, and behaviors across the continuum of a career through the AT Milestones, the athletic training profession is well prepared to continue to advance within the healthcare system and to produce the needed clinical specialists and leaders of the future.

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