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ORIGINAL RESEARCH

Assessment of Athletic Trainers' Integration of Patient-Centered Care Behaviors Using a Qualitative Case Vignette

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Context: Patient-centered care (PCC) has been widely studied in health care. Often, PCC is considered a mindset; however, there are specific behaviors to address in PCC, such as medical interviewing, exploring a patient's health literacy, and providing patient education. Much of the data specific to PCC relate to patient satisfaction rather than exploring provider behaviors.

Objective: To assess the extent to which athletic trainers (ATs) create a patient-centered environment using a standardized case vignette and behavior checklist.

Design: Qualitative procedures with quantitative analysis.

Setting: Individual, audio-only interview.

Patient or Other Participants: Twenty-seven ATs (age = 34 ± 10 years; women = 15, men = 12; clinical experience = 10 ± 9 years) from the physician practice ($n = 10$), college ($n = 9$), or secondary school ($n = 8$) setting.

Data Collection and Analysis: Participants completed a 1-on-1 interview guided by a case vignette. In their verbal response, the participants were asked to share how they would approach care for the patient specific to their job setting, focusing on practical, real-world responses. Two researchers who reviewed each transcript independently scored the responses using the Assessment of Patient-Centered Care Checklist. The trustworthiness of the coding was ensured by using a multianalyst review of the data and an external audit.

Results: ATs reported several positive behaviors yet lacked an overall PCC approach, with an average score of 26.6% on the tool. No significant differences were identified for ATs based on job setting, years of experience, or highest degree earned.

Conclusions: Our case vignette design allowed participants to share their approach to PCC through a common orthopedic patient scenario. The data gathered suggested that ATs are aware of the skills and strategies that PCC can use in clinical practice, yet they have the opportunity for improvement. Our data suggest that the lack of behaviors was not job, experience, or education specific, demonstrating the need for profession-wide training and feedback on PCC.

Key Words: Patient education, health literacy, medical interviewing

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KEY POINTS

- The athletic trainers provided clinician-centered responses to the case vignette, highlighting the lack of patient-centered care behaviors in clinical practice.
- Regardless of job setting, years of experience, or highest degree earned, athletic trainers reported less than 50% of the patient-centered care best practices specific to medical interviewing, health literacy, and patient education.
- To improve the extent to which patient-centered care is provided, providers can use the Assessment of Patient-Centered Care Checklist to analyze and audit themselves, peers, and others in their patient care as a means for continuous quality improvement.

Patient-centered care (PCC) is increasingly recognized as a crucial aspect of effective health care delivery, emphasizing the importance of involving patients in decision-making and tailoring care to individual needs and preferences.[1] The concept of PCC is rooted in the belief that health care should not only address the clinical aspects of a condition but also consider the patient's values, preferences, and unique circumstances.[2] Researchers have identified that PCC can improve health outcomes, increase patient satisfaction, and enhance patient engagement in care.[3]

Data consistently indicate that health care providers, including athletic trainers (ATs), express a strong desire to adopt patient-centered approaches in their practice.[4] This commitment is reflected in the widespread agreement among ATs regarding the significance of PCC in enhancing patient outcomes and satisfaction.[5] Despite the recognized importance of PCC, there is a notable gap between intention and implementation. Research suggests that although ATs acknowledge the value of PCC, the extent to which these practices are effectively integrated into their daily routines remains uncertain.[6,7] For instance, studies on shared decision-making highlight the discrepancy between health care providers' self-reported behaviors and actual practice, raising concerns about whether ATs genuinely create patient-centered environments.[8–10]

Moreover, screening for PCC implementation can be challenging. Patients may report differing behaviors during a provider interaction, and patient satisfaction surveys may not accurately reflect the true nature of the care received, as patients tend to overinflate positive feedback.[11–13] These factors complicate assessing whether ATs are achieving the PCC standards they aim for. Therefore, the purpose of this study was to assess the extent to which ATs create a patient-centered environment using a standardized case vignette and behavior checklist.

METHODS

Study Design

We used a scenario-based, qualitative approach to assess the extent to which ATs create a patient-centered environment specific to health literacy and patient education.[14] The data from the interviews were then coded and reported as quantitative outcomes. Institutional review board approval was granted before recruitment (Pro00127800).

Participants

This study included ATs from different job settings to describe their experiences from different occupational perspectives. ATs were recruited through the National Athletic Trainers' Association research service and social media. We specifically recruited and included participants from physician practices, colleges/universities, and secondary school settings. We successfully recruited 50 interested individuals across the job settings. We performed interviews to counter balance each job setting so participants were equally represented in the final sample. In total, 27 ATs (age = 34 ± 10 years, clinical experience = 10 ± 9 years) from the physician practice ($n = 10$), college ($n = 9$), or secondary school ($n = 8$) setting completed the scenario-based interview as part of the study. Most ($n = 19$, 70.4%) participants held a postprofessional degree, whereas 29.6% ($n = 8$) held a professional degree. Participants were also classified as early professionals for those with 1 to 6 years of experience ($n = 13$, 48.1%) and established professionals for those with 7 or more years of experience ($n = 14$, 51.9%). Table 1 provides the full demographics of the participants and selected pseudonyms to protect participant anonymity.

Scenario-Based Interview

Two members of the research team (ZKW and AMM) created 1 patient case vignette that could be applied to different job settings in athletic training. The case vignette was created using previous patient encounters for context, was short in length, did not provide facts or objective measures, and had some fictionalized elements similar to previously used case vignettes in athletic training research.[14,15] Four ATs reviewed the case vignette for face validity. The case vignette stated,

> *Alex is a soccer player who comes to you with their parents and states that their ankle hurts. They stated that they were playing soccer today and changed directions quickly, resulting in them rolling their ankle. Upon exam, they presented with pain at 5/10 and swelling outside of their ankle near the malleolus. They have no history of ankle sprains and can ambulate.*

Instrument

Rather than coding the data as part of a qualitative thematic analysis, the research team created a quantitative tool to code participant responses. The tool, Assessment of Patient-Centered Care (A-PaCC), was developed by the research team using components of the Five Step Patient-Centered Interviewing,[16] the Agency for Healthcare Research and Quality Health Literacy Universal Precautions Toolkit,[17] the Agency for Healthcare Research and Quality Teach-Back Method Technique,[18] and components of a previously published encounter checklist.[19]

Table 1. Participant Demographics

Job Setting	Pseudonym	Gender	Years of Experience	Highest Degree Earned	Additional Certifications
College	Participant 1	Woman	8	Clinical doctorate	CES, PES, ART
	Participant 2	Woman	12	Postprofessional masters	CES
	Participant 3	Woman	3	Postprofessional masters	
	Participant 4	Woman	3	Postprofessional masters	
	Participant 5	Man	22	Postprofessional masters	
	Participant 6	Woman	28	Postprofessional masters	
	Participant 7	Man	22	Postprofessional masters	CSCS, CKTI, CES, USAW
	Participant 8	Man	6	Postprofessional masters	
	Participant 9	Man	17	Postprofessional masters	
Physician practice	Participant 10	Woman	5	Clinical doctorate	
	Participant 11	Man	20	Postprofessional masters	OTC, BCS-O
	Participant 12	Man	34	Clinical doctorate	CSCS, FMS, IASTM, SFMA, PSP
	Participant 13	Woman	4	Professional masters	
	Participant 14	Woman	14	Postprofessional masters	OTC, residency trained
	Participant 15	Man	2	Professional masters	CES, residency trained
	Participant 16	Woman	5	Clinical doctorate	OTC
	Participant 17	Woman	10	Postprofessional masters	OTC
	Participant 18	Woman	7	Postprofessional masters	OTC
	Participant 19	Man	9	Postprofessional masters	
Secondary school	Participant 20	Woman	4	Professional masters	
	Participant 21	Man	4	Clinical doctorate	CSCS
	Participant 22	Man	2	Professional masters	IASTM
	Participant 23	Woman	1	Professional masters	
	Participant 24	Man	1	Bachelors	
	Participant 25	Woman	12	Postprofessional masters	
	Participant 26	Man	1	Bachelors	
	Participant 27	Woman	26	Postprofessional masters	

Abbreviations: ART, Active Release Techniques; BCS-O, Board Certified Specialist in Orthopedics; CES, Corrective Exercise Specialist; CKTI, Certified Kinesio Taping Instructor; CSCS, Certified Strength and Conditioning Specialist; FMS, Functional Movement Systems; IASTM, Instrument-Assisted Soft Tissue Mobilization; OTC, Orthopedic Technologist Certified; PES, Performance Enhancement Specialist; PSP, Power Sports Performance; SFMA, Selective Functional Movement Assessment; USAW, USA Weightlifting.

The final tool consisted of 34 prompts divided into 3 sections focused on medical interviewing skills (15 items), health literacy strategies (10 items), and patient education considerations (9 items) relevant to athletic training patient interactions. The tool used dichotomous scoring (discussed or not discussed) to judge the response, rather than the quality, specific to the behavior. Table 2 provides the A-PaCC tool used for analysis.

Data Collection Procedures

To capture the data, 1 research team member (AMM) performed individual 1-on-1, audio-only conversations on a web conferencing platform (Zoom Video Communications). After reading the case vignette to each participant, they were asked to detail how they would approach care for the patient and their support system. In their verbal response, the participants were asked to share how they would do this process specific to their job setting, focusing on practical, real-world responses rather than ideal situational answers. The specific prompts included:

- How would you create a patient-centered environment for Alex and their parents?
- How would you identify Alex's health literacy?
- Following a comprehensive evaluation, what would you provide as patient education to Alex and their parents?

Each response was recorded and downloaded for review. The recording was transcribed verbatim and returned to each participant for member checking.

Data Analysis

The qualitative responses to the case vignette were coded using the A-PaCC. We created separate data analysis teams for each job setting. The data analysis team comprised 3 independent reviewers with an external auditor. We randomized the coding team by which 2 of the 3 members reviewed each transcript initially and applied their results separately on the A-PaCC. The completed A-PaCC checklists were then shared with an external auditor to review the coding and application of the tool. For checklist items with varied reporting, meaning 1 of the 2 initial reviewers chose described and the other did not, the external auditor reviewed and selected as part of a two-thirds agreement vote. The final vote was made during a live meeting with all members of the data analysis team to ensure that a dialogue on final decisions ensued. This process ensured a multianalyst review of the data, improving trustworthiness and interrater consistency in scoring.

Descriptive statistics were performed in Microsoft Excel (V. 2410). The analysis was executed using the A-PaCC per participant by totaling the items described overall and by job setting.

Table 2. A-PaCC Tool

	Discussed	Did not Discuss
Medical Interviewing		
(1) Established privacy by bringing the patient into a private room		
(2) Gain consent such as permission to touch, informed on risk/benefits		
(3) Introduce themselves and identify their specific role		
(4) Establish a personal connection by using the patient's name		
(5) Use patient's preferred pronouns		
(6) Establish goals, chief concern, and/or agenda for the encounter		
(7) Remove barriers to communication		
(8) Indicate the time available for the exam		
(9) Ask open and closed-ended questions and one at a time		
(10) Use nonverbal and active listening techniques (head nods, words of encouragement)		
(11) Summarize the information gained during the interaction by echoing the patient's word/ repeat back		
(12) Ask questions about contextual factors (SDOH, personal life)		
(13) Express concern and empathy by supporting the patient emotionally		
(14) Encourage the patient to ask questions		
(15) Provide an option to involve the parents		
Health Literacy		
(16) Avoid medical jargon and use concise/plain language		
(17) Assess literacy using a validated tool (TOFHLA, REALM-SF)		
(18) Observe nonverbal responses from the patient		
(19) Confirmation of understanding		
(20) Listen carefully to patients without interrupting		
(21) Ensure patients have the equipment and know-how to use recommended audio-visual materials and internet resources		
(22) Train patients to use our patient portal, EMR, or other health care communication system		
(23) Assess patients' language preferences and record them in the medical record		
(24) Use appropriate language services (eg, trained medical interpreters, trained bilingual clinicians, materials in other languages) with patients who do not speak English well		
(25) Offer everyone help (eg, filling out forms, using patient portal) regardless of appearance		
Patient Education		
(26) Communicate a differential and/or a definitive diagnosis to the patient understandably		
(27) Provide concise patient education materials that use plain language and are organized and formatted to make them easy to read and understand		
(28) Provide written materials in the preferred language of the patient/family		
(29) Provide written materials at a sixth grade reading level		
(30) Provide options, including doing nothing at all, doing modifications, and doing best practices, through shared decision-making		
(31) Incorporate the patient into the long- and short-term goal-setting for work, life, and sport.		
(32) Ask patients to state critical points in their own words (ie, use the teach-back method) to assess patients' understanding of information		
(33) Use audio/video materials and visual aids to promote better understanding (eg, food models for portion sizes, models of body parts, instructional health videos)		
(34) Discuss the next steps with the patient for future appointments, providers, etc.		

Abbreviations: EMR, electronic medical record; REALM-SF, Rapid Estimate of Adult Literacy in Medicine-Short Form; SDOH, Social determinants of health; TOFHLA, Test of Functional Health Literacy in Adults.

In addition, we calculated total sum scores and percentage scores from each of the 3 categories in the A-PaCC overall and by job setting. The overall sum score on the A-PaCC was then transformed into a percentage score per participant and category, suggesting the total number of PCC behaviors elicited in the responses. We performed follow-up, nonparametric analyses, including Kruskal-Wallis and Mann-Whitney *U* tests, when appropriate, to compare overall sum scores on the A-PaCC by demographic variables, including years of experience (early career and experienced professional), highest degree earned (professional and postprofessional), and job setting (college, physician practice, and secondary school). Data were analyzed with commercially available statistical software (IBM SPSS Statistics for Windows, V. 29.0) with an α level set at 0.05.

RESULTS

Data suggested lower levels of reported PCC behaviors across ATs regardless of job setting. Participants had an overall average A-PaCC raw score of 9.04 $\pm$ 3.70 (minimum = 3, maximum = 17), which is equivalent to a percentage score of 26.58 $\pm$ 10.87% (minimum = 8.82%, maximum = 50.0%). Table 3 provides the data by job setting and by domain of the A-PaCC.

Table 3. Checklist Data

Job Setting	Participant Name	Medical Interviewing (out of 15)	Health Literacy (out of 10)	Patient Education (out of 9)	Overall (*n*, %)
College	Participant 1	6	3	6	15, 44.12%
	Participant 2	0	1	2	3, 8.82%
	Participant 3	9	2	3	14, 41.18%
	Participant 4	3	2	3	8, 23.53%
	Participant 5	2	1	3	6, 17.65%
	Participant 6	2	2	0	4, 11.76%
	Participant 7	8	2	3	13, 38.24%
	Participant 8	2	1	5	8, 23.53%
	Participant 9	3	1	4	8, 23.53%
	Average	3.8	1.6	3.2	8.78
	Percentage	25.9%	17.0%	35.8%	25.82%
Physician practice	Participant 10	3	3	5	11, 32.35%
	Participant 11	6	5	3	14, 41.18%
	Participant 12	10	3	4	17, 50.00%
	Participant 13	3	2	2	7, 20.59%
	Participant 14	8	2	3	13, 38.24%
	Participant 15	3	2	3	8, 23.53%
	Participant 16	6	3	4	13, 38.24%
	Participant 17	5	3	3	11, 32.35%
	Participant 18	4	1	3	8, 23.53%
	Participant 19	4	0	1	5, 14.71%
	Average	5.2	2.4	3.1	10.70
	Percentage	34.67%	24.0%	34.44%	31.47%
Secondary school	Participant 20	7	0	1	8, 23.53%
	Participant 21	3	1	3	7, 20.59%
	Participant 22	3	1	2	6, 17.65%
	Participant 23	4	3	3	10, 29.41%
	Participant 24	3	0	1	4, 11.76%
	Participant 25	6	1	3	10, 29.41%
	Participant 26	2	2	3	7, 20.59%
	Participant 27	3	1	2	6, 17.65%
	Average	3.8	1.1	2.2	7.25
	Percentage	25.8%	11.0%	25.0%	21.32%

ATs in the College Setting

In the patient case vignette, on average, the participants who worked in the college setting described 25.82% of PCC behaviors. College ATs did well using plain language, avoiding medical jargon, asking open and closed questions, confirming the patient's understanding, and communicating a differential diagnosis. Participants missed opportunities to use patient pronouns, assess health literacy with validated tools, and provide written materials that are concise and easy to understand for the patient.

ATs in the Physician Practice Setting

On average, participants in the physician practice setting discussed 31.47% of PCC behaviors, making it the highest average performance by job setting. Participants established a personal connection with the patient, used plain language, and provided audio/visual materials. Participants missed opportunities to use patient pronouns, assess literacy using validated tools, and assess language preferences.

ATs in the Secondary School Setting

The participants who were ATs in the secondary school setting, on average, discussed 21.32% of the behaviors, making it the lowest average performance by job setting. Participants did well involving the parents, using audio/visual materials for patient education, and communicating the following steps in care to the patient. Participants missed opportunities to express concern and empathy, use a validated tool to assess health literacy, incorporate patients into long- and short-term goal setting, and use the teach-back method.

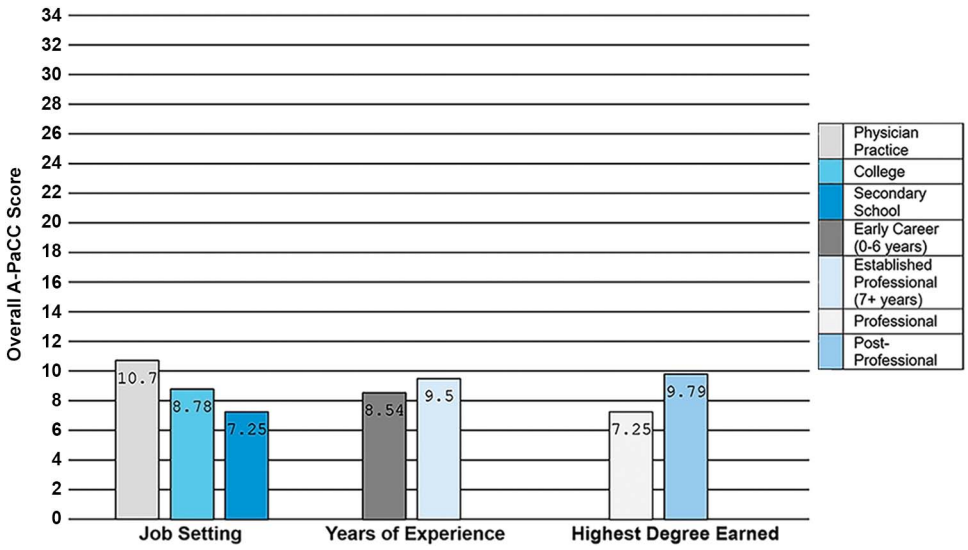
Group Comparisons

Separate Mann-Whitney U tests indicated nonsignificant differences between years of experience groups ($U = 82.0$, $P = .660$) and the highest degree earned groups ($U = 48.5$, $P = .141$). We also identified a nonsignificant difference ($H_2 = 3.878$, $P = .144$) for the overall A-PaCC score between ATs in physician practice, college, and secondary school settings from our study. The Figure provides descriptive data by group.

DISCUSSION

The participants in this study, who also engaged in a qualitative interview in a separately published study,[20] described their experiences with PCC and the strategies they use to assess health literacy and educate patients, but when provided with

Figure. Overall Assessment of Patient-Centered Care scores by demographic variables.



this case vignette, the behaviors they described did not match best practices. The study was framed using a case vignette approach whereby reported behavioral intentions used to describe their patient care may differ, both positively and negatively, in their actual behaviors.[21] It is important to note that none of the participants' responses were inappropriate or ill advised, suggesting that a clinician-centered approach is being used.[22] We will provide context to our findings and suggest methods to address the shortcomings identified in our data.

Demographic Variables

Although we did not identify statistical differences between the job settings on their behaviors to create a patient-centered environment, assess patient health literacy, and deliver patient education, we did identify meaningful differences in the behaviors of ATs in physician practice. Our data identified nonsignificant differences between demographic variables, including job setting, years of experience, and highest degree earned. ATs who worked in the physician practice setting, had 7+ years of experience, or held a postprofessional degree had higher overall PCC scores on the A-PaCC.

Previous research identified that most physicians were satisfied with the ATs working in their practice relative to PCC, interdisciplinary collaboration, use of health care informatics, professionalism, documentation, evaluation, history taking, and patient education.[23] Several participants from the physician practice setting in our study had advanced training through residency programs or orthopedic technician certification, as demonstrated in Table 1, compared with participants in the college and secondary school settings, which may explain why our physician practice participants scored higher.

According to collegiate athletes, ATs demonstrate patient centeredness in areas such as cultural competency, empathy, and respect for patients' preferences.[7] However, collegiate athletes expressed that ATs were not proficient in certain aspects of PCC, such as emotional support, inclusion of support system, and identifying patient goals.[7] The data from our study emphasize the low performance in medical interviewing, which highlights a gap in identifying support systems and establishing goals for the encounter.

Participants in the secondary school setting were least skilled in health literacy assessment and delivery of patient education, whereas PCC was comparable to participants in the college setting. Researchers found that ATs in secondary schools experienced many challenges in providing care to low-socioeconomic patients in this setting.[24] The authors called for a need to evaluate and improve awareness of social determinants of health by secondary school ATs, as these factors can contribute to low patient health literacy and failure to deliver proper patient education.[24]

Role of Education

Through the evolution of the 2012 accreditation standards and their complementary educational competencies to the curricular content standards of the 2020 standards, the explicit expectation for core competence in PCC and the ability to address health literacy and implement patient education have emerged.[25,26] Thus, it is not unreasonable to think that these skills may feel newer to today's practicing ATs. Most of our participants ($n = 22$) did not complete a professional master's degree, suggesting a potential lack of training or coursework on these topics. The implications of our study should encourage the intentional practice of PCC. It is poor form for educators to assume that people are good, and because of that, they embrace PCC. As any skill is learned, it takes time, practice, and feedback. We also encourage postprofessional pathways that allow for continued development in these topic areas. Athletic training programs can positively change the course of PCC behaviors in practicing ATs by promoting and engaging in active learning experiences during professional education. For example, we recommend creating methods to practice medical interviewing, health literacy assessment, and patient education through clinical education and simulation-based learning.

Clinical education guided by a preceptor can embrace and embody positive PCC behaviors. Previous research exploring PCC behaviors during clinical education identified that athletic training students reported not implementing any PCC behaviors in 43.4% of patient encounters, which was not influenced by the setting (college, secondary school, clinic).[27] In

addition, other research identified that at least 1 component of PCC was present in 56.6% of patient encounters, suggesting that students were exhibiting these behaviors alongside an AT.[28] However, the data further showed that only 7.7% of patient encounters had all 3 PCC behaviors, including when athletic training students recalled their previous clinical education experiences.[28] These data suggest that although we may be doing some behaviors, like discussing patient goals, ATs may not comprehensively model PCC. Athletic training programs need to ensure ongoing development for preceptors who are less familiar with PCC. Reciprocal learning is an interesting teaching method that could address this potential gap.[29] In this process, the preceptor and athletic training students are actively engaged in learning from each other. The athletic training student could share about PCC while allowing for insight into previous lived experiences from the preceptor on clinical cases. One method to do this is "teach me what you have learned," which empowers the student to recall the content, explain it in a manner that is understandable to others, and demonstrate the behaviors during patient encounters.

ATs should also have access to language guides and validated health literacy assessments that could be used in athletic training job settings. The Agency for Healthcare Quality and Research offers several resources to improve health literacy assessment and patient education behaviors.[17,30] The Agency for Healthcare Quality and Research recommends creating clear patient resources like videos/posters, health literacy assessment quizzes, and slideshows about raising awareness of health literacy and how to improve it. Patient education strategies that the Agency for Healthcare Quality and Research suggests are simple to integrate and effective after successfully assessing patient health literacy. These include the teach-back method, creating an action plan, and encouraging question asking. In addition, Madden and Tupper have shared strategies for becoming health literacy champions.[31] We recommend that organizations and employers develop other practical resources for patient education, such as after-visit summaries, audio/visual aids, and digital health tools such as mobile health applications to encourage self-care.

Quality Improvement

We recommend that ATs consider using the A-PaCC to self- or peer-audit patient interactions to create a quality improvement plan based on years of experience and feedback to improve the delivery of PCC. The frequency of evaluation should be guided by onboarding and competence. For example, a newly certified AT or an AT that has recently joined a new health care team should be audited quarterly with time for improvement as they engage in more patient interactions. Likewise, the competence of the individual, regardless of years of experience, should dictate the audit process and the need for professional development. When deficits are identified, ATs should engage in professional development and then monitor improvements. This style of quality improvement aligns well with the principles of continuing professional certification outlined by the Board of Certification.[32]

ATs, supervisors/employers of ATs, and supervising physicians should encourage self-assessment of PCC behaviors, provide regular feedback from patients and peers, and consider mentorship in PCC to support those with less experience. Annual performance reviews of ATs should be focused on effective health care delivery by including PCC behaviors and patient outcomes as key components in the evaluation process. We recommend that ATs receive feedback from a peer health care practitioner, such as a supervising physician, rather than a sports administrator.

Continuing Professional Development

The route for continuing education and professional development in athletic training should be reconsidered to advance clinical practice behaviors that result in application changes when returning to one's workplace. The 4E Framework (exposure, experience, expertise, embedding) accomplishes this goal related to continuing education.[33] Relative to the competence hierarchy (Four Stages of Competence), a framework for mastering new skills, our participants demonstrated unconscious incompetence, whereby participants answered our questions about the case vignette with deficits, suggesting that they may not have the knowledge or skills yet to assess health literacy and educate patients effectively.[34] This aligns with the theory-practice gap by which health care providers may have the knowledge or awareness about a topic but do not apply it in real-world clinical practice.[35] The data identified in our study are common across emerging topics or advances in best practices in athletic training. Researchers have identified that ATs have a positive outlook on evidence-based practice but rarely implement the behaviors during clinical practice.[36] Additionally, researchers found that only 45% of ATs always documented their patient care despite them feeling comfortable, competent, and confident in the skill.[37] ATs in the secondary school setting followed some of the ankle sprain management best practices but implemented skills like manual therapy less frequently.[38] Emergency care techniques, specifically those for exertional heat stroke, continue to be noted as an area for needed improvement, with only 17% of ATs in the secondary school setting reporting to have adopted all policy components for the diagnosis and management of exertional heat stroke.[39] Last, nearly half of ATs are not using a 3-domain concussion-assessment battery.[40]

Knowledge dissemination (programs, articles, and conferences) should result in knowledge utilization (competence, value-added, etc) through positive intentions for use and steps for implementation.[41] To effectively address unconscious incompetence, raising awareness is the necessary first approach. Most research on barriers to anything suggests time is the reason. We must continue to debunk this myth about time; every AT has the same 24 hours in a day; it is how we intend to use it that differs. ATs should use behavior change strategies that minimize resistance to implementing new practices. For instance, the Tiny Habits method is a behavior change theory that operates on the perspective that small changes create momentum and increase the likelihood of long-term adoption.[42] To create new habits in practice, ATs should consider integrating 1 new small habit until it is engrained and part of regular practice before implementing another new habit. These concepts also align with the principles of unlearning, whereby ATs must explore their current habits in everyday clinical practice to improve patient care that aligns with new evidence, strategies, and skills.[43,44]

However, exposure is insufficient as AT must continue learning about interventions to address the deficit. ATs, when engaged in continuing professional development, are responsible for identifying their deficits, edifying themselves on strategies to

improve their practice, actively implementing those strategies, and measuring change. This model of continuous quality improvement is expected in health care and athletic training. We recommend several options to address the deficits noted in our study. First, the profession should offer training and workshops to focus on the concepts of PCC. The requirement of these trainings could reduce self-selection bias for continuing education whereby the Board of Certification, Inc, could create a required module on the core competencies, such as PCC or any new skill or content area, during the reporting period for continuing education units. These could also be required, as well as revisited modules, much like the emergency cardiac care certification upload, by which an individual has to complete the online module before submitting their report. The revisiting of the topics would ensure that foundational principles, like the core competencies, are reviewed. This could help with other core competency areas of concern, such as health care informatics, evidence-based practice, and interprofessional collaboration.[45] Finally, active learning experiences with role play scenarios should be developed and offered. These experiences would encourage practice and reinforce the behaviors of PCC with feedback. The difficult aspect of PCC is the fine line between equality, meaning everyone should receive basic needs, such as the principles in the health literacy precautions toolkit, and equity, in which a personalized and individual approach should be taken to create goals and care plans unique to the patient.

Limitations and Future Research

Our study had some limitations that should be noted when interpreting the findings. First, the data shared in this manuscript were part of a larger qualitative study on PCC. The participants were asked to share their general thoughts and approaches to PCC before applying them to the scenario-based question. The recall of these techniques through the initial portion of the interview could have influenced the behaviors shared in the case vignette.

The case vignette allowed the participants to apply PCC concepts; however, discussing them theoretically could differ from using them on actual patients. The A-PaCC does not have psychometric data such as cutoff scores or minimally detectable change. The authors recognize the difficulty of achieving 100% on the A-PaCC. The experience of an AT to create rapport and trust builds the therapeutic alliance with the patient that allows for information, such as health literacy, to be revisited during patient encounters. This also allows for follow-up information on goals and support systems that could be overlooked in the initial stages of injury management and are more important during long-term planning. We encourage that the A-PaCC be used over time, much like patient interactions, to allow ATs to demonstrate their continued competence and behaviors.

The case vignette was created from real patient cases and unified to span across job settings. However, respondents in the physician practice setting have various responsibilities that are often aligned with the specialty or subspecialty area of the physician. Although we did not collect data about the daily responsibilities in the physician practice setting, this may have limited their ability to describe their behavioral intentions as it was an orthopedic case focused on the ankle. The authors intentionally removed the gender of "Alex" in the case; however, we recognize that the gender of the patient could influence the behavioral intentions of the provider.

We recommend ongoing continuing education on these PCC behaviors. Rather than a 1-time module, course, or lecture, the ongoing nature of continuing professional development on PCC encourages reflective practice over a period of time that should play a key role in preparing clinicians to modify their patient delivery behaviors. Continuing education in athletic training is typically provided using synchronous or asynchronous methods, such as webinars and conferences and reading journal articles.[46] In these formats, the learning is often unilateral, meaning a speaker presents a topic to the audience. The literature suggests that passive learning, like didactic conference sessions, usually does not encourage behavior change, creating a gap in how adult learners engage with topics.[47] We recommend an active learning process that allows a person to have hands-on strategies or opportunities to think and problem solve. We suggest that future researchers focus on applying and assessing these skills in the clinical setting. Avenues to collect and address PCC include in situ simulation (meaning in the athletic training facility or physical environment of the AT), direct observation or video recording audit of patient care, and collecting patient feedback specific to the areas in the A-PaCC that are focused on behaviors rather than satisfaction.[48]

CONCLUSIONS

Our case vignette design allowed participants to share their approach to PCC through a common orthopedic patient scenario. In our study, ATs lacked the behavioral intentions of PCC by describing, on average, only 26.6% of the PCC best practices. Our analysis further identified that the lack of PCC behaviors outlined in the participant responses was not job, experience, or education specific. There is a need for continuing professional development in athletic training specific to medical interviewing, health literacy assessment, and delivering patient education. Our hopeful outcome is that ATs will become more aware of PCC skills and behaviors, leading to the international implementation of the skill until it is mastered.

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