JOURNAL OF ATHLETIC TRAINING EDUCATION AND PRACTICE

www.natajournals.org
ISSN: 3067-1833
DOI: 10.4085/1947-380X-25-017

ORIGINAL RESEARCH

Cultural Intelligence and Cultural Agility in Practicing Athletic Trainers

Zoe E. Laferriere, MS, LAT, ATC*; Lindsey E. Eberman, PhD, LAT, ATC, FNATA†; Kenneth E. Games, PhD, LAT, ATC†
*Yarmouth High School, ME; †College of Health and Human Services, Department of Applied Medicine and Rehabilitation, Indiana State University, Terre Haute

Context: Cultural intelligence (CQ) and cultural agility (CA) are essential for effective health care. Cultural intelligence is the capacity to effectively navigate and adapt to diverse cultural contexts, while CA involves actively engaging with individuals from diverse cultural backgrounds and integrating cultural distinctions into practice.

Objective: To measure CQ and CA in practicing athletic trainers (ATs) using self-assessments and open response scenario-based questions.

Design: Cross-sectional.

Setting: Web-based survey.

Patients or Other Participants: The survey was distributed to 3000 ATs through the National Athletic Trainers' Association Survey Service; 214 people accessed it (7.1%), and 199 participants finished it (93.0% completion rate; age = 39.7 ± 0.4 years, experience = 13.3 ± 9.6 years).

Main Outcome Measure(s): Cultural agility was measured with the Cultural Agility Scale and CQ was measured using the Cultural Intelligence Scale (CQS). The Cultural Agility Scale, developed by our team (Content Validity Index scale = 1.0), assessed the 9 attributes of CA through a 14-item scale and 2 open response questions. The CQS measured CQ across 4 dimensions using a 20-item scale. Demographic subgroups were compared using parametric inferential statistics ($P < .05$ a priori).

Results: For CA, men (n = 31) and women (n = 45) scored significantly differently on curiosity (men = 4.0 ± 0.8, women = 4.4 ± 0.6, $P = .008$, Cohen d = 0.7 [moderate]), adaptation (men = 3.2 ± 0.7, women = 3.7 ± 0.8, $P = .002$, Cohen d = 0.8 [large]), and minimization (men = 4.0 ± 0.7, women = 3.6 ± 0.8, $P = .049$, Cohen d = 0.8 [large]). Participants demonstrated about half of the attributes in the scenario responses (scenario 1 = 4.3 ± 1.6; scenario 2 = 4.1 ± 1.5). For CQ, no significant differences were found between gender identities or race on the CQS or its subscales ($P > .05$). When excluding groups with <5 respondents, we identified a main effect for educational level on CQS action ($F_{4,70} = 3.901$, $P = .006$, $\eta^2 = 0.182$), in which those with bachelor's degrees (n = 6, mean = 5.5 ± 0.9) showed a higher inclination toward action than those with a professional master's (n = 16, mean = 4.1 ± 0.8; $P = .006$).

Conclusions: While ATs show moderate levels of CQ and CA, room for improvement exists for applying these constructs in diverse settings.

Key Words: Athletic training education, healthcare diversity, patient-centered care, cultural competence

Ms Laferriere is currently Head Athletic Trainer at Portsmouth High School. Address correspondence to Zoe E. Laferriere MS, LAT, ATC, Portsmouth High School, 120 Education Lane, Portsmouth, Rhode Island, 02871. zadams6@sycamores.indstate.edu.

Full Citation:
Laferriere ZE, Eberman LE, Games KE. Cultural intelligence and cultural agility in practicing athletic trainers. *J Athl Train Educ Pract*. 2025;21(2):153–160.

Cultural Intelligence and Cultural Agility in Practicing Athletic Trainers

Zoe E. Laferriere, MS, LAT, ATC; Lindsey E. Eberman, PhD, LAT, ATC, FNATA; Kenneth E. Games, PhD, LAT, ATC

KEY POINTS

- Cultural intelligence is the capacity to effectively navigate and adapt to diverse cultural contexts, while cultural agility involves actively engaging with individuals from diverse cultural backgrounds and integrating cultural distinctions into practice. These constructs may help us better understand how athletic trainers apply knowledge, skills, and abilities in diverse situations.
- Athletic trainers show moderate levels of cultural intelligence and self-report moderate to high levels of cultural agility.
- When responding to scenarios, athletic trainers are less culturally agile and could benefit from training to adapt to diverse cultural contexts.

INTRODUCTION

In the increasingly diverse health care landscape, the ability to understand and respond to cultural differences is essential for providing high-quality, patient-centered care.[1] Culture is a complex and dynamic system of shared beliefs, values, practices, behaviors, and communication patterns that are learned and passed down through generations.[1–3] Culture influences how individuals perceive the world, interact with others, and make decisions, particularly within specific contexts such as health care and professional settings.[4,5] The concept of cultural competence has been recognized as a critical factor influencing patient care and outcomes in health care.[1,4] Cultural competence refers to the ability to effectively collaborate with people from different cultures.[1,6–9] This concept has been criticized for being static and relying on previously established knowledge.[10] Additionally, the idea of being competent in any culture implies that 1 core set of beliefs and values remains unchanged and shared within a specific group.[10] However, culture itself is dynamic and evolving. Furthermore, cultural competence training often assumes that most US providers are White, non-Hispanic, male, heteronormative, and English-speaking; cultural competence trainings try to expose them to the cultures of other social groups.[10] However, as health care evolves and patient populations become more diverse, a growing need exists to focus on cultivating cultural intelligence (CQ) and cultural agility (CA) among health care professionals rather than cultural competence.[11,12]

Cultural competence is a foundational concept of CQ and CA, but these constructs offer a more comprehensive and dynamic framework for addressing cultural diversity in health care.[9,12–14] Cultural agility refers to the capacity to effectively navigate and adapt to diverse cultural contexts, enabling individuals to understand and respond to culturally based behaviors and expectations.[9] It is a multidimensional construct consisting of cognitive, metacognitive, behavioral, and motivational dimensions that draw on individuals' awareness, knowledge, inclination, and adeptness in those cross-cultural interactions.[14] Cultural intelligence incorporates cultural distinctions into practice and fosters inclusive and equitable health care environments.[9] Cultural agility is the active application of cultural knowledge and adaptability in real-time interactions.[4,12] It is a dynamic and adaptive process that encompasses the ability to swiftly learn from and adapt to new cultural contexts.[4,12] Cultural agility involves actively engaging with individuals from diverse cultural backgrounds and integrating cultural distinctions into practice to provide inclusive and equitable health care environments.[9] Rather than just recognizing cultural differences, CA requires individuals to modify their behaviors, communication strategies, and clinical decision-making to meet the demands of these cultural contexts.[9] Nine attributes of CA can give individuals the tools to effectively modify their approaches and create new norms within culturally diverse settings.[9] Rather than relying on the static process of cultural competence, CQ and CA emphasize adaptably, which requires health care professionals to continuously refine their behaviors and approaches to culturally diverse contexts. Unlike traditional cultural competence training, which often focuses on knowledge acquisition, CQ and CA promote an ongoing process of engagement, self-reflection, and applied learning which can enhance health care professionals ability to provide culturally sensitive patient care.[15–17] These constructs of CA and CQ equip health care professionals with a deeper understanding of cultural differences and the necessary skills and mindsets to effectively navigate in diverse health care settings.[9]

Diversity shapes cultural interactions in health care; thus, it is important for providers of all cultures to engage in CA and CQ.[1] Cultural misunderstandings between providers and patients can result in misdiagnoses, ineffective treatment plans, and overall decrease patient satisfaction.[18] Health care providers who engage in culturally agile and intelligent practice can adapt their approach to meet their patients' needs, which can increase engagement with patients, increase patient compliance, lead to more accurate diagnosis, and help improve health outcomes.[2,19] Cultural intelligence and CA are not benchmarks that are achieved in practice; rather, they are continuous dynamic processes that allow clinicians to grow through their knowledge and experiences within their practice.[5]

Practicing athletic trainers (ATs) operate in diverse settings, emphasizing the necessity for CQ and CA to facilitate effective interactions with individuals from various ethnic and cultural backgrounds.[15,20] According to the 2024 Board of Certification race and ethnicity demographic data, ethnic minority ATs represent approximately 20% of the total population of ATs.[21] Researchers in athletic training have demonstrated that practicing ATs self-reported high levels of cultural competence but lacked in delivering culturally competent care and that behaviors demonstrated in practice were not culturally aware or sensitive.[18] Authors of numerous studies have analyzed cultural competence among athletic training students (ATSs).[2,18–20] The authors of each of these studies reported that ATSs are aware of cultural differences but lack proficiency in delivering culturally competent care.[3,22–24] While cultural competence is taught in athletic training education programs, a gap exists in evaluating its practical

application among practicing clinicians. In the only other study in which CA was examined in athletic training, the research team explored ATs' experiences in delivering care to patients who were nonnative English speakers.[5] The ATs reported that they had little formal training and had to be more resourceful, which diversified communication strategies to provide quality care.[5] The participants also reported that adapting their care to meet cultural needs and creating a welcoming environment for nonnative English speakers were important when cultivating a patient-centered experience.[5] To date, no authors of studies have explored the levels of CQ and CA in practicing ATs. In today's rapidly evolving health care landscape, where patient and provider populations are becoming increasingly diverse, CQ and CA are no longer optional but essential for providing high-quality, equitable care. The purpose of this study is to measure the levels of CQ and CA in practicing ATs.

METHODS

Design

We conducted a cross-sectional survey in 2024 with certified ATs recruited from the National Athletic Trainers' Association (NATA) survey database. Indiana State University Institutional Review Board deemed the project exempt. The survey included an investigator-developed questionnaire and the Cultural Intelligence Scale (CQS) to assess CQ and CA within their practice. We followed the Strengthening of Reporting of Observational Studies in Epidemiology (STROBE) to guide the research design.[23]

Participants

Eligible participants were practicing ATs, including those working full-time, part-time, or on a per diem basis and members of the NATA. Participants were not currently practicing. Recruitment was conducted via e-mail using contact information obtained from the NATA database. Only completed surveys were included in the final analysis. Of the 3000 contacted, 214 started the survey, and 199 (age = 39.7 ± 10.4 years, experience = 13.3 ± 9.57 years) completed the survey (Table 1). Participants needed to complete at least 1 of the written scenario questions for CA to be included in analysis. Due to this inclusion criterion, 100 participants were excluded. The overall access rate was 7.13%, with a completion rate of 93.0%.

Instruments

Cultural Intelligence Scale. We used the CQS to evaluate CQ among practicing ATs. The instrument uses 20 questions evaluated using a 7-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*) to assess 4 dimensions of CQ: strategy, knowledge, drive, and action. These dimensions encompass metacognitive, cognitive, motivational, and behavioral aspects, reflecting individuals' awareness, knowledge, inclination, and adeptness in cross-cultural interactions.[24,25] The CQS has demonstrated high internal consistency (Cronbach $\alpha = 0.94$–0.95) and satisfactory theoretical and criterion validity across diverse cultural contexts.[17,20,26] Authors of previous studies have affirmed its discriminant and incremental validity.[16,17,20,25] In clinical practice, the strong psychometric properties of the CQS allow for a reliable measurement and assessment of CQ while highlighting areas of improvement in clinical practice.

Table 1. Demographics of Certified Athletic Trainers by Cultural Ethnicity, Gender, Years of Experience, and Age

Characteristic	No. (%)	Mean ± SD
Ethnicity		
Asian or Asian American	2 (2.1)	
Black or African American	5 (5.2)	
Hispanic, Latin(a/o), or Latinx	7 (7.2)	
Indigenous or Native American	0 (0.0)	
Pacific Islander	1 (1.0)	
White or European American	78 (80.4)	
≥2 cultural identities	3 (3.1)	
Other	1 (1.0)	
Gender		
Woman	56 (57.1)	
Man	42 (42.9)	
Highest degree earned		
Bachelor's	6 (6.2)	5.1 ± 0.9
Master's (professional AT)	19 (19.6)	3.5 ± 1.1
Master's (postprofessional)	23 (23.7)	4.3 ± 1.2
Master's (other or non-AT)	38 (39.2)	4.2 ± 1.4
Clinical doctorate	9 (9.3)	4.4 ± 1.0
Research doctorate	2 (2.1)	3.3 ± 3.2
Years of experience		
Range	1–43	
Average	12.7	
Age		
Range	23–67	
Average	39.7	

Abbreviation: AT, athletic trainer.

Cultural Agility Scale. To assess CA among health care professionals, we developed and validated a Cultural Agility Scale (CAS) comprised of 14 items evaluating confidence in the attributes associated with CA, tolerance of ambiguity, curiosity, resilience, relationship building, perspective taking, humility, adaptation, and integration.[9] Each item was rated on a 5-point Likert scale (Table 2), assessing each attribute of CA. We also established 2 scenarios (Appendix) whereby the participants were asked to reflect on the cases and consider how they would navigate the situation, collaborate with other providers, establish trust and rapport, and educate the patient with respect for the patient's cultural beliefs and preferences. The CAS underwent development, numerous revisions, and validation by expert evaluation and Content Validity Index (CVI) assessment.[27] Three experts within the cultural competence and health care space assessed the CAS for clarity and relevance, ensuring alignment with the intended construct. Subsequent revisions based on expert feedback aimed at raising the CVI-item clarity scores over the expected 0.8 index (CVI scale = 1.0) benchmark for 7 items by clarifying language and refining item phrasing. All items achieved satisfactory CVI-item relevance scores (>0.80) and the overall CVI-scale score was 1.0, indicating strong content validity.

Procedures

The CQS and CAS were administered electronically to eligible participants via the Qualtrics platform, accessible through a dedicated survey link distributed to ATs using contact information obtained from the NATA database. The survey

Table 2. Cultural Agility Attributes[9]

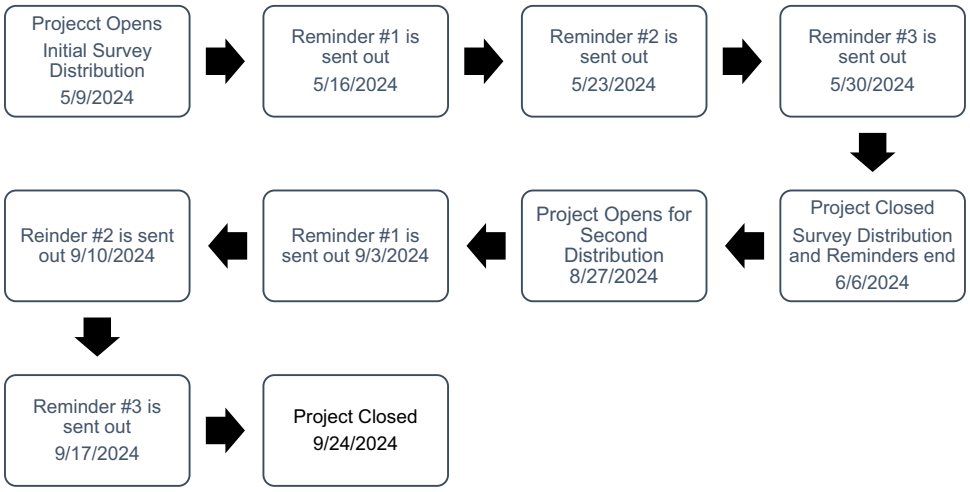
Attribute	Definition	Scale	CA Self-Report	CA Case-Based Assessment Frequency Count	
			Mean ± SD	Scenario 1, No.(%)	Scenario 2, No.(%)
Tolerance of ambiguity	The level of comfort one feels when in situations of novelty	1 = uncomfortable 5 = very comfortable	3.9 ± 0.7	9 (9.1)	12 (15.4)
Curiosity	The desire to know, understand, or learn more about a subject or person	1 = very weak 5 = very strong	4.2 ± 0.7	71 (71.7)	24 (30.8)
Resilience	The ability to bounce back in the face of setbacks	1 = very poorly 5 = very well	4.0 ± 0.6	4 (4.0)	8 (10.3)
Relationship building	The ability to foster trusting and supportive bonds with others	1 = very ineffective 5 = very effective	4.3 ± 0.6	83 (83.8)	69 (88.5)
Perspective-taking	The ability to see something from another person's point of view, even if you do not agree.	1 = never 5 = always	4.1 ± 0.7	84 (84.8)	66 (84.6)
Humility	The ability to recognize the limits of one's knowledge and skills	1 = very poorly 5 = very well	4.2 ± 0.7	26 (26.2)	13 (16.7)
Adaptation	The ability to behave in a way that is expected, even if those behaviors are not consistent with your own norms	1 = not willing at all 5 = extremely willing	3.5 ± 0.8	36 (36.4)	52 (66.7)
Minimization	The ability to maintain a standard and uphold a norm irrespective of what others are doing	1 = not important at all 5 = extremely important	3.7 ± 0.9	32 (32.3)	13 (16.7)
Integration	The ability to create a new set of norms across a diversity of approaches	1 = very incapable 5 = very capable	3.9 ± 0.7	75 (75.6)	59 (75.6)

introduction provided a detailed overview of the study objectives and procedures, followed by informed consent instructions. The total survey included 45 questions and took approximately 10 minutes to complete. A follow-up e-mail reminder was sent weekly for 3 weeks after the initial distribution to prompt participants who had not yet completed the survey. Data were collected for a period of 5 weeks between April and May 2024 and again for a period of 4 weeks between August and September 2024. All responses were securely collected and stored on the Qualtrics platform, ensuring the anonymity of participant data (Figure).

Data Analysis

We hypothesized that we would find statistical differences between genders, cultural ethnicities, and education levels.[2,3,28–30] However, the participant population did not demonstrate sufficient demographic diversity in terms of cultural ethnicities, and

Figure. Data collection timeline.



therefore, an independent t test (1-tailed, $P < .05$ a priori) was used to compare gender identities on the CQS and CQ subscales and a 1-way analysis of variance was used to compare educational levels on the CQS and CQ subscales ($P < .05$ a priori). We used separate 2-tailed t tests to compare gender identities on each of the CAS self-assessment items and the average performance on the case-based scenarios; significance was set at $P < .05$ a priori.

Cultural Intelligence Scale (CQS). The CQS was scored according to the provided instructions. Subscores for each dimension of CQ (strategy, knowledge, drive, and action) were calculated by taking the average of responses to the respective sets of questions. The total CQ score was calculated by averaging the subscores obtained from each dimension. Descriptive statistics, including mean ± SD and quartile values, were computed using commercially available statistical software (SPSS, version 28.0.1) for each subscore and the total CQ score to summarize participants' CQ levels. Quartile values were used to examine how CQ scores were distributed across participants to identify potential outliers.

Cultural Agility Scale (CAS). A thematic analysis approach was used to analyze qualitative data obtained from the CAS. Qualitative responses provided by participants were analyzed using a coding process involving multiple coders. The coders independently reviewed and coded qualitative responses from the CAS. An initial round of open coding was conducted to identify and label the emergent themes and patterns within the data. Coders then engaged in a collaborative process to compare and refine codes, fix discrepancies, and reach a consensus on the final codebook. Once consensus was reached on the coding framework, qualitative responses were scored dichotomously based on the identified themes and patterns using 0 = *no*, 1 = *yes*. Frequency counts were conducted to quantify the prevalence of each CA attribute among participants. This involved tallying the number of occurrences of each theme across participant responses to determine the frequency of occurrence.

Quantitative data from the CAS were analyzed using commercially available statistical software (SPSS). Descriptive statistics, including mean scores ± SD and quartile values, were computed to summarize participants' CA levels and the distribution of CA scores among participants. Quartiles allowed us to examine how CQ scores were distributed across the participants. A χ^2 test was used to assess the associations between demographics or themes in the responses and CA variables. We used the qualitative insights from the CAS to help explain the quantitative and provide context for the emergence of certain themes.

RESULTS

Cultural Intelligence

Participants indicated moderate levels of CQ (Table 3). The highest mean score was observed in the CQ strategy dimension (M = 5.3 ± 0.9), while the lowest was in the CQ knowledge dimension (M = 3.8 ± 1.2). The total CQ score had a mean of 4.7 ± 0.8, reflecting moderate levels of CQ overall. No statistically significant differences were identified between gender identities and race on the CQS and CQ subscales ($P > .05$). When excluding groups with less than 5 respondents, we identified a main effect for educational level on CQS action ($F_{4,70} = 3.901$, $P = .006$, $\eta^2 = 0.182$), whereby the group with bachelor's (M = 5.5 ± 0.9) as their highest degree earned showed a higher inclination toward action than those with a professional master's (M = 4.1 ± 0.8; $P = .06$).

Table 3. Cultural Intelligence Scale and Subscale Means

Dimension	Scale	Mean ± SD	Minimum, Maximum
Total	1 = very strongly disagree 7 = very strongly agree	4.7 ± 0.8	2.80, 6.35
Strategy		5.3 ± 0.9	2.00, 7.00
Knowledge		3.8 ± 1.2	1.00, 6.33
Drive		5.3 ± 0.9	3.20, 7.00
Action		4.7 ± 0.9	2.20, 7.00

Cultural Agility

The attributes of CA indicated in the CAS show a consistent performance across the 2 scenarios. Participants reported moderate to high levels of confidence in their self-reported CAS behaviors, with 8.1% report feeling extremely confident, 21.2% feel very confident, 40.4% feel moderately confident, and 8.1% feel slightly confident, as shown in Table 2. The highest levels of agility were seen with curiosity (M = 5.0 ± 1.1), while the lowest scores were seen in minimization (M = 3.6 ± 0.8). The most frequently noted attributes in scenario 1 were relationship building (n = 84/99, 84.8%), perspective-taking (n = 83/99, 88.5%), and integration (n = 75/99, 75.6%), while resilience (n = 4/99, 4.0%) and tolerance of ambiguity (n = 9/99, 9.1%) were the least frequently noted. The most frequently noted attributes in scenario 2 were perspective-taking (n = 69/99, 88.5%), relationship building (n = 66/99, 84.6%), and integration (n = 59/99, 75.6%), while the least were resilience (n = 8/99, 10.3%) and tolerance of ambiguity (n = 12/99, 15.4%). In the evaluation to ensure consistency between scenarios, we identified no significant differences between participant performance ($P < .05$). When comparing groups on an average score between the scenarios, we identified a statistically significant difference ($F_{1,96} = 9.684$, $P = .002$, $\eta^2 = 0.092$) between gender identities, in which women (n = 56) demonstrated a higher average agility score (M = 4.5 ± 1.1) than men (n = 43, M = 3.7 ± 1.4). We did not identify statistically significant differences ($F_{5,91} = 2.018$, $P = .083$, $\eta^2 = 0.100$) between different educational levels. Also, no statistical differences were found between White and non-White participants ($P > .05$).

DISCUSSION

In this study, we explored CQ and CA in ATs through self-assessment and case-based scenarios, as outlined in the Appendix. Both CQ and CA are essential for fostering cultural, patient-centered care in diverse health care environments.[4,9,12,14] While previous researchers have focused on cultural competence in ATSs and health care professionals broadly, in this study, we are among the first to specifically examine CQ and CA among practicing ATs.[2,19–21] By evaluating self-reported and case-based responses, in this study, we provide insights into how ATs perceive and apply these constructs in practice.

The findings demonstrated moderate levels of CA, with participants demonstrating strengths in relationship building, perspective-taking, and integration. These attributes suggest that ATs may excel in fostering interpersonal relationships and adapting to different perspectives, which could help build rapport and adherence to the treatment plan. Prior researchers have suggested that women tend to exhibit higher empathy and emotional intelligence, which may enhance attributes like relationship-building and perspective-taking.[16,25,26] The results also revealed significant gender differences, in which female participants demonstrated higher levels of CA attributes than their male counterparts. While, in this study, we only analyzed differences between men and women, future researchers should explore how CA and CQ manifests across diverse gender identities to develop a more inclusive understanding of CA and CQ in clinical practice. The lower levels of tolerance of ambiguity and resilience suggest a need for focused enhancement in these areas. Tolerance of ambiguity is the ability to remain comfortable in uncertain or new situations without rigid assumptions.[9] In clinical practice, low tolerance of ambiguity could lead to reliance on stereotypes, premature decision-making, and may reduce trust among patients. Similarly, resilience refers to the ability to recover from setbacks, persist through challenges, and navigate adversity without disengaging.[9] In clinical practice, this could manifest as difficulty adapting to challenging patient interactions, frustration in cross-cultural exchanges, or emotional fatigue when navigating complex cases. The low performance here may stem from structured clinical experiences that may prioritize diagnostic thinking over adaptability.

Another key finding was that ATs demonstrated high CQ strategy, which indicates a strong awareness of and planning for culturally diverse encounters; however, a notable gap was found in CQ knowledge, which is the ability to understand cultural differences and how effective in different environments. This gap raises the question of whether ATs struggle with knowledge retrieval, accessing stored cultural knowledge, knowledge use, or applying this knowledge in practice. Social learning theory, a basic principle of clinical observation, which can be the only exposure some students have to varying populations, is insufficient without practical reinforcement.[31] To bridge this gap, experiential learning methods should be integrated into educational training, professional development, and continuing educational opportunities. This could enhance CQ application in real-world settings, and this means doing and reflection, not just observing in clinical education. This specific practice gap may reflect a persistent issue in which health care professionals may recognize the importance of CQ but lack the ability and knowledge to effectively implement it into their interactions.[1,7,10,32]

Interestingly, participants with bachelor's degrees as their highest level of education performed better than those with more advanced degrees, but the effect size was low, meaning the differences may not be substantive. This finding raises questions about how educational experiences influence CA and CQ or if this is an anomaly in the data. However, it is important to consider the origins of the differences. Given the professional master's degree has become the predominant degree, it is possible that the current curriculum may not adequately prepare professionals for culturally complex clinical encounters. It is also possible that the folks with bachelor's degrees may have more years of experience, which aligns with the recent change in the entry-level degree for practice. Upon contemplating this finding, we did analyze the results relative to years of experience and found no significant differences.

Cultural intelligence and CA play a crucial role in how ATs and other health care professionals effectively navigate diverse clinical situations and collaborate with colleagues.[33,34] In health care, professionals are frequently interacting with not only patients but also families and interdisciplinary teams with differing cultural values, communication styles, and expectations. Strong CA and CQ may enable ATs and health care professionals to adapt their approaches in these situations to effectively communicate with and develop treatment approaches that align with patients' cultural values and beliefs. In interprofessional collaboration, having CA and CQ ensures that ATs can effectively engage with colleagues from different backgrounds and perspectives. As health care continues to become more diverse, the ability to adapt to cultural contexts must be considered a core competency rather than an accessory skill. While traditional cultural competence training often relies on static knowledge, CA and CQ require continuous learning, self-reflection, and real-time behavioral adjustments.[1,9,12]

LIMITATIONS

The limitations of this study include a low response rate of 7.1%, but the sample is representative of ATs. According to the Board of Certification 2023–24 Certification Maintenance Data, as of April 2024, the AT profession is predominantly female (57.9%) and White (80.0%), with smaller proportions identifying as Hispanic or Latino (5.9%), Black or African American (4.6%), or Asian (3.7%). Additionally, gender identity data show that 57.3% of ATs identify as women, 41.0% as men, and 0.1% as nonbinary. Age distribution data indicate that 28.8% of ATs are between 20 and 29 years old, while 37.2% fall within the 30–39 age range. Many ATs (47.6%) have been certified for fewer than 10 years, highlighting a relatively young workforce.[35] The lack of diversity among the participants in this study is representative of the athletic training profession, and it limited our ability to fully explore the effects of cultural background on CA and CQ. Diversity-sensitive care requires an understanding of patient perspectives across a broad range of cultural backgrounds.[33] The lack of diversity in this study is reflective of a more widespread issue in health care research, in which underrepresentation of diverse populations hinders progress in addressing health disparities.[30] Evidence suggests that ethnically diverse health care teams are better equipped to meet the needs of diverse patients.[25] Our sample included a majority of White ATs, but cultural diversity extends beyond race and ethnicity and includes gender identity, language, socioeconomic status, and other lived experiences. Future researchers should include different methodological approaches to access a more diverse sample, even if it is not representative or cross-sectional. Lastly, the reliance on self-assessment measures is inherently subjective and may not accurately capture participants' true capabilities. The case-based scenarios provide a limited snapshot of participants' performance but may not reflect real-world interactions. Ideal research of this phenomenon would include observation, peer evaluations, and qualitative interviews to provide a more comprehensive assessment of CA and CQ in practice.

IMPLICATIONS FOR FUTURE RESEARCH

Future researchers should explore CQ and CA across diverse health care settings and patient populations, expanding from athletic training to other health care professions. The results of this study align with the broader trends in health care, in which many health care organizations have increased emphasis on diversity and inclusion but continue to fall short in delivering culturally responsive care.[26,36] This gap is likely not due to a lack of awareness, but rather, it is a failure to translate knowledge into practice. Tools and frameworks designed to assess cultural competence often do not account for the dynamic nature of cultural interactions.[26,36] Additionally, addressing the lack of cultural diversity in participant samples is critical for future research, as it would more accurately characterize how different ethnicities and cultures influence CQ and CA. Future researchers should further examine the differences between education levels across ATs and their effect on CQ and CA. Looking beyond education, professional development should focus on equipping providers to navigate the unpredictable nature of cultural encounters.[32,36] Institutional policies must support diversity at all levels in which CQ and CA become the norm, which will also help reduce disparities in health care.[32] However, it is not lost on researchers focused on inclusive practices in health care that policies are being rescinded at a time when momentum to shift providers beyond theory into practice exists. Inclusive practices in health care are unlikely without both structural and cultural support.

CONCLUSIONS

Cultural intelligence and CA are essential for ATs working in increasingly diverse health care environments. In this study, we found that, while ATs demonstrate strength in relationship-building, perspective-taking, and integration, gaps remain in their tolerance of ambiguity, resilience, and overall CQ knowledge. These findings highlight the need for targeted education that emphasizes real-world application of CQ and CA, rather than relying solely on theoretical knowledge. Integrating scenario-based training and using experiential learning opportunities could help bridge the gap between cultural knowledge and practical application. Addressing these gaps requires systemic changes in both AT education and professional development opportunities. Additionally, organizations must commit to creating environments that prioritize cultural responsiveness by integrating CQ and CA into continuing education, workplace policies, and performance evaluations. Ultimately, advancing CQ and CA within athletic training is not just about improving individual competencies; it is also about providing equitable, patient-centered care. By shifting from awareness to actively using CQ and CA, ATs can better navigate diverse patient interactions and contribute to a more inclusive health care system.

REFERENCES

1. Nair L, Adetayo OA. Cultural competence and ethnic diversity in healthcare. *Plast Reconstr Surg Glob Open*. 2019;7(5):e2219. doi:10.1097/GOX.0000000000002219
2. Schouten BC, Meeuwesen L. Cultural differences in medical communication: a review of the literature. *Patient Educ Couns*. 2006;64(1–3):21–34. doi:10.1016/j.pec.2005.11.014
3. Grantham J. Cultural competence and diversity. National Athletic Trainers' Association. February 2015. Accessed December 3, 2023. https://www.nata.org/sites/default/files/2025-08/cultural-competence-diversity-athletic-training.pdf
4. Mairs-Levy JJ. Diversity and cultural competence in healthcare settings: the merits of unbiased multicultural observation in clinical and research contexts. *Biofeedback*. 2017;45(3):50–51. doi:10.5298/1081-5937-45.3.02
5. Stanton BM, Rivera MJ, Winkelmann ZK, Eberman LE. Support systems and patient care delivery for non-native English-speaking patients: a study of secondary school athletic trainers. *J Athl Train*. 2022;57(2):148–157. doi:10.4085/1062-6050-0570.21
6. Arif SA, Schlotfeldt J. Gaps in measuring and mitigating implicit bias in healthcare. *Front Pharmacol*. 2021;12:633565. doi:10.3389/fphar.2021.633565
7. Aggarwal NK, DeSilva R. Developing cultural competence in healthcare professionals: a fresh approach. *Med Educ*. 2013;47(11):1143–1144. doi:10.1111/medu.12323
8. Soulé I. Cultural competence in healthcare: an emerging theory. *ANS Adv Nurs Sci*. 2014;37(1):48–60. doi:10.1097/ANS.0000000000000016
9. Thomas DC, Liao Y. *Handbook of Cultural Intelligence Research*. Edward Elgar Publishing; 2023.
10. Lekas HM, Pahl K, Fuller Lewis C. Rethinking cultural competence: shifting to cultural humility. *Health Serv Insights*. 2020;13:1178632920970580. doi:10.1177/1178632920970580
11. Majda A, Bodys-Cupak IE, Zalewska-Puchaa J, Barzykowski K. Cultural competence and cultural intelligence of healthcare professionals providing emergency medical services. *Int J Environ Res Public Health*. 2021;18(21):11547. doi:10.3390/ijerph182111547
12. Joseph P. Eliminating disparities and implicit bias in healthcare delivery by utilizing a hub-and-spoke model. *Res Ideas Outcomes*. 2018;4:e26370. doi:10.3897/rio.4.e26370
13. Oluwabunmi O, Mitra AK, Roberts JK. A systematic review of implicit bias in healthcare: a call for intersectionality. *IMC J Med Sci*. 2019;12(1):005.
14. Earley PC. Redefining interactions across cultures and organizations: moving forward with cultural intelligence. *Res Organ Behav*. 2002;24:271–299. doi:10.1016/S0191-3085(02)24008-3
15. Caligiuri P. *Cultural Agility: Building a Pipeline of Successful Global Professionals*. Jossey-Bass; 2012.
16. Earley PC, Ang S. *Cultural Intelligence: Individual Interactions Across Cultures*. Stanford University Press; 2003.
17. Moodian MA, ed. *Contemporary Leadership and Intercultural Competence: Exploring the Cross-Cultural Dynamics Within Organizations*. SAGE Publications; 2008:233–250.
18. Marra J, Covassin T, Shingles RR, Canady RB, Mackowiak T. Assessment of certified athletic trainers' levels of cultural competence in the delivery of healthcare. *J Athl Train*. 2010;45(4):380–385. doi:10.4085/1062-6050-45.4.380
19. Schwei RJ, Johnson TP, Matthews AK, Jacobs EA. Perceptions of negative health-care experiences and self-reported health behavior change in three racial and ethnic groups. *Ethnicity Health*. 2016;22(2):156–168. doi:10.1080/13557858.2016.1244621
20. Strong L. Recommendations for cultural competence education by practicing athletic trainers. *J High Educ Athl Innov*. 2023;1(10):17–35. doi:10.15763/issn.2376-5267.2022.1.10.17-35
21. Board of Certification for the Athletic Trainer. Published April 2024. *2023–24 BOC Certified AT Demographics*. PDF Accessed October 25, 2024. https://bocatc.org/wp-content/uploads/2024/02/BOCCertifiedATDemographics.pdf

22. Berkowitz B. The patient experience and patient satisfaction: measurement of a complex dynamic. *OJIN Online J Issues Nurs*. 2016;21(1):1. doi:10.3912/OJIN.Vol21No01Man01
23. Maurer-Starks S. *Are Athletic Training Students Culturally Competent?* Columbia University; 2005.
24. von Elm E, Altman DG, Egger M, et al. Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *BMJ*. 2007;335(7624):806–808. doi:10.1136/bmj.39335.541782.AD
25. Van Dyne L, Ang S, Ng KY, Rockstuhl T, Tan ML, Koh C. Sub-dimensions of the four-factor model of cultural intelligence: expanding the conceptualization and measurement of cultural intelligence. *Soc Personal Psychol Compass*. 2012;6:295–313. doi:10.1111/j.1751-9004.2012.00429.x
26. Bucker J, Furrer O, Lin Y. Measuring cultural intelligence (CQ): a new test of the CQ scale. *Int J Cross Cult Manag*. 2015;15(3):259–284. doi:10.1177/1470595815606741
27. Gozzoli C, Gazzaroli D. The Cultural Intelligence Scale (CQS): a contribution to the Italian validation. *Front Psychol*. 2018;9:1183. doi:10.3389/fpsyg.2018.01183
28. Polit DF, Beck CT. The Content Validity Index: are you sure you know what's being reported? Critique and recommendations. *Res Nurs Health*. 2006;29:489–497. doi:10.1002/nur.20147
29. Mareno N, Hart PL. Cultural competency among nurses with undergraduate and graduate degrees. *Nurs Educ Perspect*. 2014;35(2):83–88. doi:10.5480/12-834.1
30. Schim SM, Doorenbos A, Benkert R, Miller J. Culturally congruent care: putting the pieces together. *J Transcult Nurs*. 2007;18(2):103–110. doi:10.1177/1043659606298613
31. Loftin C, Hartin V, Branson M, Reyes H. Measures of cultural competence in nurses: an integrative review. *ScientificWorldJournal*. 2013;2013:289101. doi:10.1155/2013/289101
32. Bandura A. *Social Learning Theory*. Prentice Hall; 1977.
33. Stubbe DE. Practicing Cultural Competence and Cultural Humility in the Care of Diverse Patients. Focus (Am Psychiatr Publ). 2020 Jan;18(1):49-51. doi: 10.1176/appi.focus.20190041.Epub 2020 Jan 24. PMID: 32047398; PMCID: PMC7011228.
34. Spangler PT, Liu J, Hill CE. *Consensual Qualitative Research: A Practical Resource for Investigating Social Science Phenomena*. American Psychological Association; 2012.
35. Ang S, Van Dyne L, Koh C. Cultural intelligence: a conceptual framework for cross-cultural competence. In: Ang S, Van Dyne L, eds. *Handbook of Cultural Intelligence*. M.E. Sharpe; 2008:3–15.
36. Tervalon M, Murray-Garcia J. Cultural humility versus cultural competence: a critical distinction in defining physician training outcomes in multicultural education. *J Health Care Poor Underserved*. 1998;9(2):117–125. doi:10.1353/hpu.2010.0233

Appendix

Scenario 1: As an athletic trainer working with a soccer team, one of the star players, who comes from a culture that values holistic healing and traditional remedies, sustains a minor ankle sprain during practice. The patient expresses a preference for herbal treatments and alternative therapies over conventional medical interventions. Using the following prompts, please describe your approach to providing culturally intelligent and agile care in this scenario.

Scenario 2: One day, you receive a referral to assess a patient who has been experiencing persistent pain in their shoulder. Upon meeting the patient, you discover that he or she comes from a cultural background in which seeking medical help for minor ailments is frowned upon, and self-reliance and stoicism are strongly emphasized. The patient appears hesitant to discuss his or her symptoms openly and expresses a desire to tough it out and continue training. Using the following prompts, please describe your approach to providing culturally intelligent and agile care in this scenario.