

Program Directors' and Athletic Training Students' Educational Experiences Regarding Patient-Centered Care and Transgender Patient Care

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Context: The United States transgender patient population often suffers from insufficient health care and faces barriers to obtaining health care. Understanding the current classroom education provided in professional athletic training programs related to patient-centered and transgender patient care is necessary to foster improvements to the education of future health care providers.

Objective: To explore the education, comfort, and experience of professional athletic training students and program directors (PDs) on patient-centered care (PCC) and transgender patient care.

Design: Cross-sectional survey.

Setting: Online survey.

Patients or Other Participants: A total of 74 PDs of Commission on Accreditation of Athletic Training Education-accredited professional athletic training programs (age = 46 ± 9 years) and 452 athletic training students (age = 23 ± 3 years) responded to the survey.

Data Collection and Analysis: Two surveys were created from literature and were reviewed by a committee of content experts. Participants were sent links to their respective survey in March 2020. Surveys contained questions on demographic information, PCC, and transgender patient care. Data were analyzed descriptively with follow-up χ^2 analyses comparing athletic training students' comfort and competence between those who learned and did not learn about transgender patient care.

Results: Most PDs reportedly felt comfortable (98.6%, n = 73) and competent (94.6%, n = 70) teaching PCC. Half (50% n = 37/74) of PDs include transgender health care in their program's curriculum but lacked competence (37.8%, n = 28) in teaching. All students felt comfortable (100%, n = 452) and competent (98.7%, n = 446) practicing PCC, but only 12.4% (n = 54) reported practicing it during clinical education. Less than half (43.1%, n = 195/452) of students learned about transgender patient care, yet most (78.3%, n = 354) felt comfortable but lacked competence (41.8% n = 189).

Conclusions: Few students reportedly practice PCC during clinical education. Both groups perceived deficiencies in competence related to transgender patient care. We suggest PDs teach transgender health care in their curriculum and seek professional development to create meaningful educational experiences.

Key Words: Gender minority, curriculum, clinical education, comfort

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KEY POINTS

- All (100%, n = 71) program directors of professional athletic training programs report students practice patient-centered care during clinical education; however, only 12.4% of students reported practicing this skill at their clinical site.
- Half of program directors and less than half of athletic training students (43.1%) reportedly teach about and learned about, respectively, transgender patient care in their professional athletic training programs.
- Most program directors (55.4%) reported a lack of guidance as a barrier to teaching about transgender patient care.

INTRODUCTION

Athletic trainers serve an increasingly diverse patient population that includes people of different races, backgrounds, religions, sexes, genders, and sexual orientations. Through the provision of patient-centered care (PCC), athletic trainers and other health care providers may be able to improve care for diverse and marginalized populations that often face health disparities.¹ Patient-centered care is thought to improve health outcomes and patient satisfaction while reducing health disparities.²⁻⁴ In 2001, the National Academy of Medicine, at the time Institute of Medicine, reported that PCC was a core competency that could aid health care providers in improving patient outcomes and contribute to moving the health care system of the United States into the 21st century.⁵ Patient-centered care is valuable for patient outcomes and quality of care as recognized by not only the patient but also policymakers and health system administrations.^{4,6} Patient-centered care is also a core competency for professional athletic training programs accredited by the Commission on Accreditation of Athletic Training Education (CAATE) that has been emphasized by the profession for 10 years.^{7,8} Core competencies are ultimately intertwined, and authors of related research continue to demonstrate room for increased implementation of all core competencies, including PCC.⁸⁻¹⁰ Professional athletic training programs are designed to teach students the knowledge and skills and provide clinical experiences that prepare them to register and take the Board of Certification examination to become athletic trainers.¹¹ At the time of this study, there were athletic training programs delivered at both the bachelor's and master's level. Professional athletic training students are students currently enrolled in CAATE-accredited professional athletic training programs.¹¹ These professional athletic training programs are guided by a medical director, a team of core faculty members, and program director (PD) who follow the current CAATE standards for accreditation of professional athletic training programs.⁷ The PD is a full-time faculty member with responsibility to develop, plan, implement, and evaluate the program's framework. The framework is a living document developed in consultation with all core faculty that includes

the program design, delivery, and assessment related to teaching, learning, and clinical education.⁷ Therefore, the PD should be aware and engaged with all strategic planning relative to curriculum design, instructional methods, sequencing, and assessment plans.

Patient-centered care requires the provider to embark on shared decision making while making decisions that are respectful and responsive to the patient. However, it is difficult to integrate this in one's practice if they are unfamiliar with background, demographics, and lived experience of the individual and their community. One population that often faces low satisfaction with health care providers due to disparities related to access and quality of care is patients who are gender minorities.^{12,13} *Gender* is self-described and is a combination of a person's identity, expression, attributes, and how these components relate to traditional cultural norms and roles in society.^{12,14} In the United States, societal norms typically divide gender into binary categories, male and female, that align with an individual's sex assigned at birth. However, sex assigned at birth and gender identity cannot be conflated. An individual's gender identity is a deeply rooted internal perception of self that may or may not align with their sex assigned at birth.^{12,14} *Gender expression* is a term that describes a person's external presentation such as their behavior, clothing, hairstyle, or voice and may or may not be analogous to their identity.^{14,15} These expressions may or may not correlate with societal expectations of masculinity and femininity or may be entirely androgynous.¹⁵ Societal expectations of gender are often based on sex assigned at birth, assigned as male, female, or intersex, typically by visual examination.¹² Humans have several indicators that can further determine sex assigned at birth, including internal and external genitalia, chromosomes, hormone levels, and secondary sex characteristics.¹⁶ Gender minority individuals are those whose gender identity or expression is different from the sex they were assigned at birth and are considered outside societal, cultural, or physiological norms.^{14,17} The gender minority population has recently gained increased acknowledgment, spurred by advances in political and social progress.^{12,18} In 2011, the National Academy of Medicine initiated an extensive examination of the gaps in research on sexual and gender minorities.¹⁹ The report described a structural barrier that limits sexual and gender minoritized individuals' ability to obtain health care.¹⁹ The barrier discovered was a lack of health care provider training in lesbian, gay, bisexual, transgender, and queer (LGBTQ+) needs.¹⁹

One gender minority group is the transgender community or the "T" of the LGBTQ+ population. The transgender community is an underserved group of the greater gender minority population that faces health disparities.¹ *Transgender* is a term that describes when one's gender identity does not match their sex assigned at birth.¹⁵ A person who identifies as transgender can have any sexual orientation, as

the term transgender does not reflect sexual orientation.¹⁵ In the United States, it is estimated that there are about 1 million adults who identify as transgender or 390 per 100 000 people according to a 2017 metaregression.²⁰ The trends show that the population of transgender people in the United States is increasing, possibly due to the notion that individuals may feel more at liberty to report and identify as transgender due to increased awareness and acceptance in public.²¹ There is a need for appropriate, PCC of marginalized patients, such as patients who are gender minorities, which is interrelated with the core principles of the athletic training profession.^{7,22} Health care disparities faced by the transgender population in the United States include lack of access to culturally competent and knowledgeable health care providers, discrimination in health care facilities, lack of insurance or insurance that does not address their needs, and health system barriers.^{19,23–24} The transgender population experiences stigma, discrimination, barriers to health care, adverse health effects, and health disparities.^{1,23,25,26} Documented health disparities for the transgender population include a higher rate of conditions such as human immunodeficiency virus, sexually transmitted infections, mental illness, substance abuse, suicide, and poverty.¹³ In addition to the health and health care disparities, the transgender population also has a unique set of health care needs in primary care, preventative medicine, health education, and the process of transitioning, including hormone replacement therapy-related needs.²³ The negative and, at times, dangerous atmosphere for transgender patients further necessitates knowledgeable health care providers who can support, advocate for, and provide valuable and meaningful health care for this minoritized population.²²

Though health care barriers are numerous and multifaceted, education is an initial step to yield improved health outcomes and minimize barriers for patients who are transgender.^{12,27} When patients who are transgender receive health care services, a health care provider's lack of familiarity with or lack of knowledge of a transgender person's needs can affect the provider-patient relationship, which has the potential to affect the access and quality of care.^{19,23,28} Most health-related barriers that the transgender population face are grounded in the 8 principles of PCC as presented by the Picker Institute.^{29,30} These principles, established in 1987, include access to care and describe the importance of patients being able to obtain the care they need.²⁹ Since athletic trainers already provide health care for diverse populations that include patients who are transgender, professional athletic training education curricula need to educate students about transgender people and transgender patient care.³¹ Education on cultural competency and diversity is necessary to teach professional athletic training students how to provide PCC to LGBTQ+ patients.³² Unfortunately, the literature identifies that athletic trainers lack the general knowledge, comfort, and competence in specific topics needed to care for transgender patients.^{33,34} In a study about athletic trainers working in the collegiate setting, only 28.8% of the respondents stated they had formal education about transgender patient needs.³⁴ In this same study, half of the respondents reported feeling comfortable caring for transgender patients, and about half felt competent in their ability to care for transgender versus cisgender patients.³⁴ A lack of comfortable and competent athletic trainers who can deliver high-quality, PCC to transgender patients is doing a disservice to the transgender

population and the athletic training profession.³⁵ With this current lack of knowledge, it is imperative that the profession works not only to address credentialed athletic trainers' lack of knowledge but also current athletic training students' knowledge on transgender patient care.³¹

The literature indicates that athletic trainers would be more comfortable caring for a patient who is transgender if they had more education and training.³² Furthermore, athletic trainers at colleges and universities desire more knowledge on how to create a safe patient-care environment for transgender patients.^{32,35} There is a desire for more education on transgender health care by athletic trainers and transgender patients cared for by athletic trainers and a gap in research about what professional athletic training students are learning about regarding transgender patient care.^{31,32} There is a need for more research on education about the transgender patient population in professional athletic training education programs to facilitate the provision of safe and competent PCC.³⁶ Professional athletic training programs must prevent future generations of athletic trainers from lacking knowledge on transgender patient needs and using a PCC approach when caring for transgender patients, as PCC can address the aforementioned poor outcomes and experiences described by authors of related literature, as the Institute of Medicine⁵ includes PCC as one of the elements of high-quality care.³³ Therefore, the purpose of this study was to describe the current educational experiences concerning PCC and gender minority care with a focus on transgender patients in professional athletic training programs by gaining insight from the PD and professional athletic training student.

METHODS

Study Design

We used a cross-sectional study design to explore the research question. The setting for this descriptive study was 2 online surveys (Qualtrics, Inc, Provo, UT) each with their own group of participants, PDs of professional athletic training programs and current students enrolled in professional athletic training programs. To guide the design and quality assessment of the reported data, we used the STROBE statement for cross-sectional studies.³⁷ The Institutional Review Board at the University of South Carolina deemed the study exempt.

Participants

Program Directors. After obtaining ethics approval, we recruited PDs of professional athletic training programs accredited by the CAATE via email. We invited PDs for programs delivered at the professional (baccalaureate and postbaccalaureate) level listed as having a program on the CAATE Web site ($n = 365$). Of the 365 emails sent, 90 participants accessed the survey (access rate = 24.7%). We removed 16 responses before data analysis, as they did not consent, were not a PD, or did not complete the survey in its entirety, leaving 74 responses for analysis (completion rate = 82.2%). The PD respondents were 46 ± 9 years old (range = 33–64 years old). Overall, the PDs had 23 ± 9 years of experience as a credentialed athletic trainer, 16 ± 8 years of experience as an educator, and 9 ± 8 years of experience (range = 1–34 years) as a PD.

Table 1. Participant Demographic Information

Characteristic	Program Director, Frequency (%)	Athletic Training Student, Frequency (%)
Gender		
Female	42 (56.8)	331 (73.2)
Male	32 (43.2)	118 (26.1)
Nonbinary or third gender	0 (0)	1 (0.2)
Prefer not to say	1 (1.4)	1 (0.2)
Prefer to self-describe	0 (0)	1 (0.2)
Do you identify as transgender?		
Yes	0 (0)	7 (1.5)
Prefer not to say	1 (1.4)	0 (0)
What program are you associated with?		
Professional bachelor	38 (51.4)	318 (70.4)
Professional master	36 (48.6)	101 (22.3)
Professional bachelor or master combination	0 (0) ^a	33 (7.3)
Accreditation status		
Active in good standing	51 (68.9)	
Seeking accreditation	3 (4.1)	
Degree change pending	9 (12.2)	
Probation	8 (10.8)	
Probation or voluntary withdraw	2 (2.7)	
Voluntary withdraw	1 (1.4)	
Academic status		
Junior		76 (16.8)
Senior		236 (52.2)
First-year master		41 (9.1)
Second-year master		93 (20.6)
Prefer to not say		6 (1.3)

^a Commission on Accreditation of Athletic Training Education (CAATE) data were used to match participants; CAATE does not report combination degree programs.

Athletic Training Students. Similarly, we sent recruitment emails to students enrolled in an athletic training program. To do so, we used the National Athletic Trainers' Association (NATA) research database to contact 3548 student members. Of those 578 athletic training students who accessed the instrument (16.3% access rate), we collected 527 responses with 11 participants not consenting to participate, 26 participants not starting the survey after consenting, and 38 participants not completing the study in its entirety. This resulted in 452 responses (78.2% completion rate) included in the data analysis. The athletic training students were 23 ± 3 years old (range = 19–44 years old). Table 1 provides demographic variables for both groups of participants.

Instruments

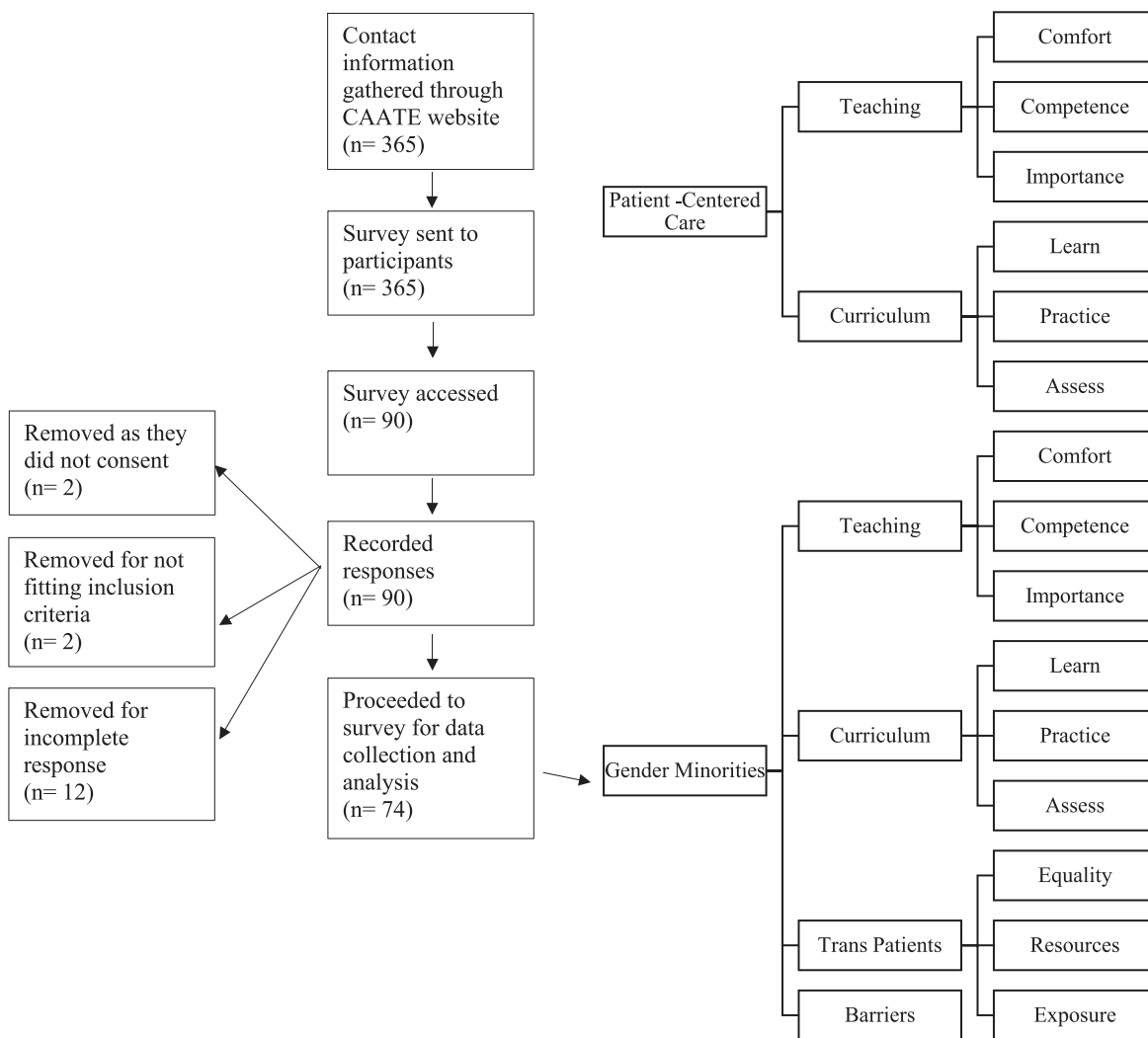
Instrument Development. To design the instruments, 2 researchers (G.T.S., Z.K.W.) performed a literature search for scientific research studies about transgender health education for health care professionals as well as instructional techniques.^{18,27,38–43} From the search, previous survey questions and findings from the literature were gathered and considered in developing the items for this study. This technique is consistent for establishing construct validity. The goal was to design 2 instruments similar in nature and content for the targeted population. The 2 researchers created the instrument and sent it to a panel of 3 content experts (A.K.C., L.E.E., S.M.R.) on LGBTQ+ health care needs for content validation

using a modified Delphi panel technique. The surveys were both edited and revised for clarity, function, and appropriateness to the research question. The review completed by the research team and content experts was proceeded by a discussion on research reflexivity to identify and mitigate potential sources of bias. Each group of participants received a separate survey with the same questions worded based on their role as PD or athletic training student. An overview of the components of the PD (Figure 1) and athletic training student (Figure 2) surveys demonstrate the recruitment methodology and similarities in survey items relative to the topics of PCC and transgender patient care.

Program Director Survey. The survey for PDs contained 32 questions with skip logic functions to present questions only if appropriate based on previously answered questions. The survey had 8 demographic questions of themselves and their athletic training program, 9 questions focused on PCC, and 14 questions on transgender patient health care needs using various 4-point Likert scales.

Athletic Training Students Survey. The survey for the athletic training students contained 33 questions in total with 5 demographic questions, 7 questions focused on PCC, and 21 questions related to health care for gender minorities including transgender patients. Athletic training students rated their level of agreement with their competence and comfort in providing care to transgender patients ($n = 12/21$ questions) on a 4-point Likert scale. Several of these agreement statements used in our study were adopted from

Figure 1. Methodology and survey flow chart for the program director participants.



the literature and noted from the results of the previous study as deficiencies relative to transgender patient care by credentialed athletic trainers.³⁴

Procedures

All recruitment emails with a link to the survey were sent in March 2020. Once participants opened the survey link, they were presented with an invitation to participate, followed by the instrument respective to their identified role in the athletic training program. The data collection window was open from March 17, 2020, to April 14, 2020, with reminder emails sent once per week for the 4-week window.

Statistical Analysis

We incorporated data from only completed surveys due to the study having 2 target groups with 2 specific foci: PCC and transgender health care needs. The data from both surveys were downloaded and exported into a spreadsheet (Excel 2016; Microsoft Corp, Redmond, WA) and then again into SPSS (Version 26; Armonk, NY) for descriptive statistics to be performed. We analyzed the data by group using measures of central tendency relative to their demographics, comfort, competence, and described educational experience. We used

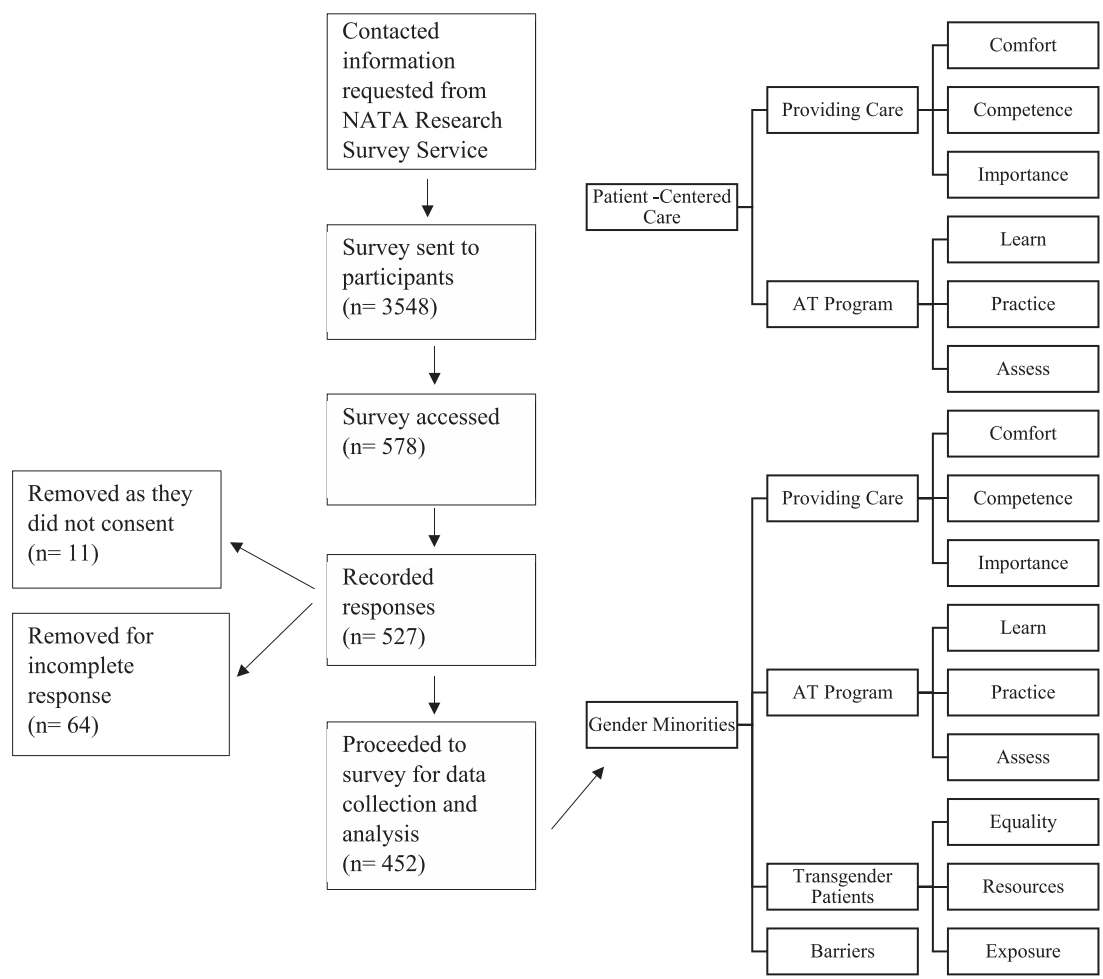
separate χ^2 analyses to calculate the differences between the athletic training students' comfort and competence regarding specific aspects of transgender patient care between the students who had and those who had not reportedly learned about transgender patient care. The significance value was set at $P < .05$ a priori.

RESULTS

Patient-Centered Care

Program Directors. Most PDs expressed that PCC was an important concept to teach ($n = 73, 98.6\%$), and accordingly, 95.9% ($n = 71$) of PDs taught the core competency in their professional athletic training program. Most PDs agreed or strongly agreed that they felt comfortable ($n = 73, 98.6\%$) and competent ($n = 70, 94.6\%$) teaching PCC. The PDs reported athletic training students learned about PCC in class ($n = 71, 100\%$) and during clinical education ($n = 59, 83.1\%$). All the PDs stated the athletic training students practiced PCC during clinical education ($n = 71, 100\%$). The PDs reported using several different instructional strategies, with the most common being class discussions ($n = 63, 88.7\%$) and various assessment methods, with the most common being practical

Figure 2. Methodology and survey flow chart for the athletic training students.



exams (n =53, 74.6%) to teach PCC. The full breakdown of instructional strategies is provided in Table 2.

Athletic Training Students. All athletic training students agreed or strongly agreed (n = 452, 100%) that they believed it was important to integrate patient-centered into their clinical practice, and they felt comfortable (n = 452, 100%) doing so. Most athletic training students reported perceived competence (n = 446, 98.7%) in providing PCC. Of the athletic training students who learned about PCC in their professional athletic training program (n = 437, 96.7%), most reported they learned about it in class (n = 379, 86.7%) or during clinical education (n = 376, 86.0%). However, when students were asked where they practiced PCC, the majority reported in the classroom (n = 419, 95.9%), while only 12.4% of participants (n = 54) reported practicing PCC skills during clinical education. Finally, we asked the athletic training students who said they had learned about PCC (n = 407/437, 93.1%) where they were assessed. Over two-thirds of the respondents stated they were assessed with clinical integrated proficiencies or observed patient encounters (n = 312/437, 71.4%).

Gender Minority Patients

Program Directors. After providing a definition of gender minority patients, which included noncisgender individuals such as transgender, genderqueer, and gender nonconforming, we identified that 50% (n = 37/74) of PDs had transgender

patient care in their curriculum with an additional 31.1% (n = 23/74) stating they were planning to integrate in the future. We identified that 50% (n = 37/74) of PDs stated their professional athletic training program included PCC and gender minority content in the curriculum, while others' programs only included PCC (n = 12, 16.2%). Some PDs (n = 22, 29.7%) reported their program was currently working to integrate gender minority patient care into their curriculum. Three participants (4.1%) reported their program does not teach either concept in their curriculum. Most of the programs that were integrating gender minority topics into their curriculum were delivered at the professional master's level (n = 24/37, 63.9%; bachelor's = 13/37, 35.1%).

Of the sample of PDs whose professional athletic training programs were teaching about gender minority patients (n = 37), 97.3% of participants (n = 36/37) believed in and taught athletic training students to treat patients equally, including transgender patients. Most PDs reported their program taught athletic training students how to find resources for transgender patients (n = 32, 86.5%). A smaller sample (n = 13, 35%) created opportunities for engagement with a gender minority patient as part of the athletic training program.

The PDs reported that athletic training students mostly learned about transgender patient care in the classroom (n = 36, 97.3%), with the most common instructional method being class discussions (n = 28, 77.8%) with a far lower percentage

Table 2. Patient-Centered Care and Transgender Patient Care Instructional Techniques Used by Program Directors (Select All That Apply)

Strategy	Patient-Centered Care Frequency, No. (%)	Transgender Patient Care Frequency, No. (%)
Simulation-based learning: interactions during didactic or clinical education with mannequins, standardized patient encounters, simulated learning experiences, and mock scenarios	53 (74.6)	10 (27.8)
Online: learning modules and discussion boards as part of the didactic coursework which may include reviewing PowerPoints, etc, on the student's own time	16 (22.5)	2 (5.6)
Case and problem-based learning activities: a lecture-style presentation of a unique patient case or series of cases that requires the student to critically reflect on their decisions; often includes a Q&A session at the end	59 (83.1)	15 (41.7)
Class discussion: a prompted dialogue within the class or small group situations	63 (88.7)	28 (77.8)
Video modeling: review of video-taped interactions from themselves and/or others	13 (18.3)	2 (5.6)
Clinical workshop: an interactive, hands-on session designed to practice clinical skills or learn new techniques	13 (18.3)	0 (0)
Panel discussion: a group of experts responding to prepared or fielded questions from the audience which may include other health care providers and/or patients themselves	9 (12.7)	3 (8.3)
Lecture: directed instruction by program faculty during didactic coursework	62 (87.3)	19 (52.8)
Expert lecture: directed instruction by a content expert	16 (22.5)	10 (27.8)
Trainings: mandated or optional trainings such as online modules from an organization, etc	14 (19.7)	8 (22.2)
Readings: include peer-reviewed journal articles, news articles, policies (NCAA, AMA), and online resources	51 (71.8)	13 (36.1)

having the same opportunities during clinical education (n = 13/36, 35.1%). Table 2 provides a detailed breakdown of all instructional strategies. The PDs reported that they believed athletic training students practiced the skills for gender minority care in the classroom (n = 36/37, 97.2%) and fewer during clinical education (n = 22/37, 59.4%). Finally, most PD respondents (n = 33/37, 89.2%) said they assess students on transgender patient care. Of those who did assess students, the PDs usually used less than 2 assessment mechanisms to assess athletic training students' skills related to gender minority care, with most using either class participation (n = 17/37, 46.0%) or quizzes, tests, and exams (n = 14/37, 37.8%). Table 3 compares PD-reported assessment strategies to what athletic training students reported assessments they experienced for both PCC and gender minority patients.

Most PDs (n = 65, 87.8%) thought teaching transgender patient care was important, and 58.1% (n = 43) felt comfortable doing so, yet only 37.8% (n = 28) felt competent in their delivery. Interestingly, we had several participants select that they neither agreed nor disagreed they were comfortable (n = 18, 24.3%) or confident (n = 27, 36.5%) with teaching about the care for transgender patients. Lastly, common barriers PDs identified that they or their athletic training program might have faced in teaching, considering, and/or adding the topic of transgender health care needs into their professional athletic training program (Figure 3) included a lack of guidance incorporating the topic (n = 41, 55.4%) and a lack of knowledge regarding transgender health care (n = 38, 51.4%).

Athletic Training Students. Less than half (n = 195/452, 43.1%) of athletic training student respondents reported learning about transgender patient care. We identified that 42.5% (n = 195/452) learned both PCC and gender minority patient care, while the majority learned about only PCC (n = 245, 54.2%). The athletic training students in professional master's programs learned about gender minorities more often (n = 63/101, 62.4%) than those in a professional bachelor's program (n = 116/318, 36.5%) or a combination bachelor's and master's program (n = 16/33, 48.5%). We identified that most athletic training students (n = 192/195, 98.5%) who learned about gender minority patients believed in treating all patients, including patients who are transgender, equally and that their athletic training program teaches equality for all patients (n = 183/195, 93.8%).

Most athletic training students reported learning about transgender patient care during class (n = 165, 84.6%) as compared with clinical education (n = 52, 26.7%). Nearly half of participants (n = 82, 42.1%) reported never interacting or practicing their skills with a transgender patient. Finally, many athletic training students reported they were not assessed on their knowledge or skills related to transgender patient care (n = 83, 42.6%). Of those who partook in assessments on the topic, many were assessed only with class participation (n = 76, 39%). Table 3 shows all reported assessment strategies used on gender minority patient care.

The survey also included specific questions relative to transgender patients. We identified that most athletic training students said they agreed or strongly agreed (n = 418, 92.5%)

Table 3. Assessment Strategies Reported Frequency

Strategy	Patient-Centered Care, Frequency (%)		Transgender Patient Care Frequency (%)	
	Program Director (n = 71)	Athletic Training Student (n = 437)	Program Director (n = 37)	Athletic Training Student (n = 195)
• Quiz, test, or exam	44 (62.0)	222 (50.8)	14 (37.8)	32 (16.4)
• Practical exam (skill, standardized patient)	53 (74.6)	261 (59.7)	12 (32.4)	12 (6.1)
• Clinical integrated proficiency (observed patient encounter)	44 (62.0)	312 (71.4)	6 (16.2)	21 (10.8)
• Assignment	41 (57.8)	132 (30.2)	5 (13.5)	23 (11.8)
• Presentation	14 (19.7)	72 (16.5)	2 (5.4)	20 (10.3)
• Class participation (in-class dialogue, discussion board posting, etc)	47 (66.2)	221 (50.6)	17 (45.9)	76 (39)
• Not assessed on this topic	1 (1.4)	30 (6.9)	4 (10.8)	83 (42.6)
• Other	3 (4.2)	2 (0.5)	1 (2.7)	6 (3.1)

that it is important to learn about transgender patients in professional athletic training programs. The athletic training students agreed (n = 379, 83.8%) that considering a patient's gender was essential to provide PCC, yet 5.8% (n = 26) of athletic training students did not feel it was necessary to ask a patient's gender identity. Most athletic training students agreed (n = 354, 78.3%) they felt comfortable providing transgender health care, but less than half agreed (n = 189, 41.8%) they were competent. Table 4 provides results from the athletic training students' comfort and competence with specific areas of transgender patient care. The χ^2 analyses indicated significant differences between these groups on all measures of comfort and competence, while those who had not learned about transgender patient care still indicated comfort with the tasks but indicated less perceived competence with counseling on hormone replacement therapy, drug screening processes, and collaborating with endocrinologists. Lastly, a lack of guidance was the most reported barrier by the athletic training students (n = 347, 76.8%), affecting their ability to provide care to the mock transgender student-athlete patient. Figure 3 provides a complete list of barriers and their definitions⁴⁴ in the survey that were options for the PDs and athletic training students to select with the data sorted by percentage of those who agreed that it was a barrier for transgender patient care.

DISCUSSION

The results identified that nearly all PDs reported their professional athletic training programs taught about PCC. In addition, almost all athletic training student respondents said they learned about PCC. It is important to note that over 50% of our survey respondents were from the undergraduate athletic training programs. While the profession is undergoing a degree transition, the results are applicable and transferable among all professional athletic training programs, as the CAATE assumed that programs operated on the expectation that PCC topics were occurring all along. In December 2020, the CAATE remarked that the "intent of the patient-centered care curricular content requires programs develop students who can practice cultural competency in patient/client care."^{45(p2)} Therefore, we believe the results from this study are transferrable. Furthermore, most baccalaureate and postbaccalaureate programs are employing the same faculty

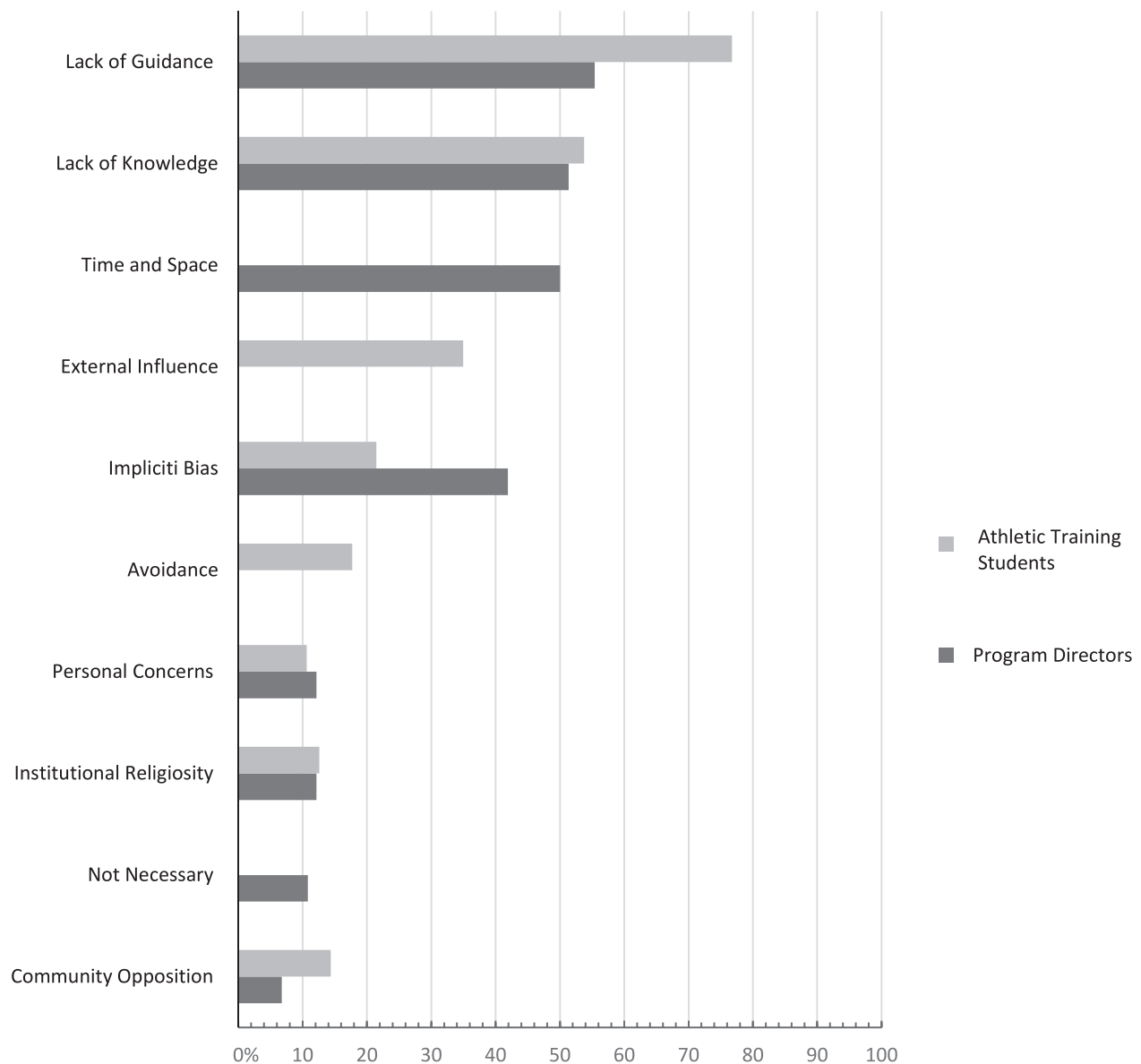
members during the transition, meaning that those teaching in bachelor level programs are continuing to teach in master level programs. While the 2020 CAATE Standards are designed for master's level professional athletic training programs, we believe that the content is expected for all professional athletic training students.

Of the PDs who include PCC in their curricula, all reported they think students in their program practice PCC during clinical education. On the contrary, only 12.4% of athletic training student respondents stated they practice PCC in clinical education. We additionally discovered that half of the PDs included gender minority patient care in their curricula, which coincide with the finding that almost half of student respondents said they learned about gender minority patients. These findings provide insight into why athletic training students reported feeling comfortable caring for transgender patients but reported less competence in specific areas of transgender patient care.

Patient-Centered Care

Almost all PDs who responded to this survey taught PCC in their athletic training curricula. All but 1 PD agreed they felt comfortable and competent teaching the core competency of PCC. This is imperative since PCC is now required to be taught and assessed by accredited professional athletic training programs.⁷ In the survey, we asked PDs if all patients should be treated equally, to which most PDs agreed. Following social learning theory, students expressed similar beliefs of the PD, as a vast majority of athletic training students reported they believe in equal treatment for all patients. Based on these responses of most PDs and athletic training students, further education about health care equality and equity may be warranted. Equity in health care is the effort to remove health disparities such as those that are faced by individuals who are not cisgender.⁴⁶ Creating equity involves removing obstacles or barriers for these groups.⁴⁶ Removing these extra barriers to care requires more engagement. Therefore, equal treatment will not suffice if the goal is to eliminate health disparities, and transgender patients face both health and health care disparities.³⁴ By working toward equity, athletic trainers will expand access to health care, a PCC principle.³⁰ In a comparison between athletic training

Figure 3. Percentage of participants that agreed with predicted barriers to transgender patient care.



Definitions of barriers* = Only shown to respective participants

- **Lack of knowledge** - I do not understand transgender health needs to provide care/topic
- **Institutional Religiosity** - School affiliated religion affects my comfort
- **Community Opposition** - Legislation, school board, and outside community groups object adoption/me caring for the patient
- **Lack of Guidance** - Unsure where to start and adopt the necessary skills into my practice/unsure how to enact or adopt the topic into the curriculum
- **Personal Concern** - My own religious, political, or moral beliefs do not align with providing care to the patient
- **Implicit Bias** - My misconceptions, fears, and/or stereotypes of the patient
- **External Influence*** - My peers, coaches, colleagues, and other patients expressed concerns
- **Avoidance*** - The situation should be overlooked as it is not fundamentally necessary for clinical practice
- **Time and Space*** - Lack of curriculum space for this additional content
- **Not Necessary*** - Topic is not fundamentally necessary for professional athletic training

practice and primary care, Green and Sauers⁴⁷ report successful primary care delivery outcomes, and one outcome is equity of care. If athletic trainers want to contribute to those care outcomes and reduce health disparities, we must educate students to promote health care equity through their clinical practice.⁴⁷ The PDs may not be perceiving the entirety of PCC, as it also involves practicing equity in health care,

cultural competence, and an appreciation of patients' diversity.⁵ A majority of PD and athletic training student respondents do not perceive that some patients require extra help, as alluded to by their responses. Their responses identify a need for athletic training programs to emphasize the influences of health disparities and being a part of a socially disadvantaged group on the provision of PCC.

Table 4. Athletic Training Student Comfort and Competence with Transgender Patient Care (Rate Your Level of Agreement With the Following Statement)

	SA/A		SD/D		Neither		χ^2	P Value
	L	NL	L	NL	L	NL		
Comfort: I am comfortable ...								
providing care to the transgender patient population.	166/195	188/257	2/195	15/257	27/195	54/257	18.227, 4	0.001
providing health care to a patient who was biologically assigned female at birth but identifies as male.	165/195	188/257	4/195	12/257	25/195	57/257	18.992, 5	0.002
providing health care to a patient who was biologically assigned male at birth but identifies as female.	165/195	183/257	4/195	14/257	26/195	60/257	19.306, 4	0.001
asking someone their pronouns.	136/195	144/257	16/195	47/257	43/195	66/257	18.474, 4	0.001
educating transgender student-athletes about the regulations (set forth by NCAA, NAIA, or other sport regulatory bodies) that might affect their participation in sport.	117/195	113/257	42/195	74/257	36/195	70/257	11.766, 4	0.019
Competence: I am competent ...								
in the background and skills necessary to care for a transgender patient.	112/195	77/257	22/195	87/257	61/195	93/257	44.733, 4	0.00
in recognizing and referring mental health concerns for a transgender patient.	161/195	148/257	7/195	49/257	27/195	60/257	42.935, 4	0.00
in counseling transgender patients about the impact of hormone replacement therapy on sport participation.	68/195	36/257	72/195	160/257	55/195	61/257	38.617, 4	0.00
in counseling transgender patients about how hormone levels can affect NCAA, NAIA, or other sport regulatory bodies' drug-screening processes.	76/195	62/257	71/195	153/257	48/195	42/257	25.719, 4	0.00
in collaboratively practicing with an endocrinologist about transgender patients who undergo drug-screening processes.	85/195	76/257	57/195	121/257	53/195	60/257	16.569, 4	0.002

Abbreviations: L, learned; NL, not learned; SA/A, strongly agreed or agreed; SD/D, strongly disagreed or disagreed.

The PDs who reported teaching PCC in their curricula often used class discussions, lectures, and case-based or problem-based learning as instructional strategies. Lecturing is considered a passive learning method, while discussion and case- and problem-based learning are active.⁴³ These teaching techniques generally follow the constructivism theory of learning since, during class discussion and problem-based learning activities, students are actively conversing, generating questions and hypotheses, and exploring contradictions via social interaction.⁴⁸ A recent systematic review found active learning techniques successfully foster lower- and higher-order cognition.⁴³ Both lower- and higher-order skills developed during active learning experiences could prepare students to render equitable and PCC.⁴³ Active learning techniques that can be used to promote learning of PCC include techniques like concept mapping, jigsaw discussion, inquiry learning, role playing, and simulation.⁴³ To make lectures more interactive, we suggest that PDs and instructors consider incorporating breaks for discussion, demonstrations, think-pair-share activities, or games.⁴³ As for assessment, the PDs reported most often using practical exams and class participation to assess PCC. The literature offers support for assessment strategies used in professional athletic training education,^{49,50} and PDs

could use these in their professional athletic training programs to assess PCC. Incognito standardized patients or real-time situations during clinical education are supported by authors of various studies for being realistic ways to assess clinical proficiencies, as they are most applicable to prepare athletic training students for the professional practice of athletic training.^{49,50}

Since PCC is a foundational core competency for athletic training students, implementing intentional learning opportunities for students to learn and practice PCC is vital in improving their ability to provide care.^{7,9} Due to the nature of PCC, foundational learning of PCC can occur both in the classroom and with opportunities to learn and practice hands on during clinical education per the theory of constructivism in which learners interact with their physical and social surroundings.⁴⁸ Learning about PCC in professional athletic training education could promote students to use this approach when caring for patients, including transgender patients, which would enhance communication, advance the patient-provider relationship, and improve overall patient satisfaction.^{2-4,51}

In addition to teaching PCC in the classroom, all PDs in this study stated they believed that students in their program learn and practice PCC during clinical education. Concerningly, of the athletic training student participants, only 12.4% said they practiced PCC during clinical education even though all athletic training students agreed that PCC was important and said they were comfortable providing it. In a previous study, Cavallario et al⁹ identified that PCC was the most likely reported core competency by students during patient encounters at their clinical education sites, while in our study, it was barely reported. The authors also reported that students who assisted during a patient encounter and whose clinical site was a secondary school generated the most frequent reports of PCC.⁹ Competencies such as PCC need to be intentionally and comprehensively implemented into clinical education, as found in peer health care professions such as medical and nursing education.^{52,53} In another study on core competency inclusion by athletic training students, 363 students from 12 different professional athletic training programs reported their use of PCC by recording if they performed professional behaviors related to PCC during patient encounters at their clinical education sites.⁸ Patient-centered care behaviors tracked were the use of goal setting with the patient, patient-reported outcome measures, and clinician-rated outcomes.⁸ The authors reported finding that 36.6% of students used 1 behavior, 12.2% of students used 2 behaviors, and 7.7% used all 3 PCC behaviors.⁸ The findings from previous literature yield higher implementation of PCC by professional athletic training students than our study, as 1 study reported 90.9% of students said they implement PCC during patient encounters, the previously mentioned study found 56.5% of students implemented at least 1 of 3 possible PCC behaviors, while the present study found 12.4% of students practice PCC during clinical education.^{8,9} We believe the reasons for the incongruence between the PD and student perception of practicing PCC in clinical education is multifaceted but begins with different definitions of PCC among the athletic training students, PDs, other educators, and the clinical preceptors. Previous researchers have identified that patients and athletic trainers have a distinct viewpoint of PCC which is usually based off dignity, respect, and the best available care.^{54,55} However, PCC is multidimensional and needs to consider the support system, information delivery, and sociocultural factors that play a role in the care provided.

Professional athletic training PDs, core faculty, instructors, and clinical preceptors must make additional progress to teach, model, and allow students to practice PCC behaviors during didactic and clinical education, as it is required by the CAATE standards in addition to potentially facilitating improved patient-provider communication, environmental safety, and quality of health care.^{4,5,51} Currently, there is a lack of faculty presence observing athletic training students in their clinical practice. Educators may believe PCC is being practiced, but this tendency is linked back to the *false consensus effect*, which is a cognitive bias that leads to an overestimate of others' behaviors or attitudes aligning with their own. Administrators of professional athletic training programs should implement preceptor training on PCC and encourage preceptors to explicitly identify to the athletic training student when they are providing PCC. The process should also include evidence-based assessments of PCC that are delivered. Unclear evaluation techniques from clinical preceptors may be shared with PDs, suggesting that the

practice is occurring in clinical practice; however, the student may not recognize their application of these behaviors at that instance. It is imperative to note that these data do not suggest athletic training students are not patient centered during clinical education. It does note that they are either not practicing it or not cognizant of these behaviors, which could be the root cause of the analysis.

In addition, PDs can consider the type of clinical site, patient populations at clinical sites, and general core competency education as efforts to increase athletic training students' provision of PCC during clinical education. The opportunities at the clinical site also affect core competency use.¹⁰ Particularly for PCC, athletic training students who performed orthopaedic evaluation, manual therapy, and therapeutic rehabilitation were 3.6, 2.6, and 1.9 times, respectively, more likely to implement PCC.¹⁰ Program directors who want their athletic training students to gain clinical experience in performing PCC should encourage clinical preceptors to provide athletic training students these specific opportunities to incorporate not only clinical skills but PCC skills at their clinical sites.¹⁰ Lastly, to mitigate the incongruence identified in our results, we suggest that instructional techniques such as direct observation, standardized patient exams with live actors, bug-in-ear technology, and video modeling of previous patient interactions be used to promote self-reflection and future practice habit changes that integrate PCC principles.⁵⁶⁻⁵⁸

Gender Minority Care

Exactly half of the PDs reported their athletic training program taught about gender minority patients, which includes individuals who are transgender. This finding is like what athletic training students who participated in our study reported; 43.1% said they learned about gender minority patients in their athletic training program. This is an improvement from previously reported data, where a majority of athletic trainers in the collegiate setting said they had received no formal education about the needs of LGBTQ+ patients.³² However, there is still room to increase the number of athletic training students who receive professional education on gender minority patients, especially because PCC is a core competency in the CAATE standards, and knowledge about the gender minority population and their health care needs are inherently a part of PCC.⁷ By educating students on the subject, it could improve transgender care and address inequities.^{31,34} Part of why the transgender population face health inequities is because transgender health care education is sometimes not included in health care students' curricula.¹⁸ In 1 study on medical students, 74% of participants reported they had 2 hours of education or less regarding transgender patients, and authors of another study found medical schools spent 5 hours total on LGBTQ+ health.^{12,40} Authors of a study on baccalaureate prelicense nursing programs described that median time spent teaching about LGBTQ+ health topics and concerns was 2.12 hours total.⁵⁹ Authors of another study on a pediatric residency program evaluated outcomes of a longitudinal intervention of a curriculum related to LGBTQ+ content, which was based on the results of a needs assessment of providers.⁶⁰ After a year-long intervention, the participants' comfort level in soliciting patient information such as gender identity, sexual activity, or screening questions increased in addition to an increase in knowledge.⁶⁰

Authors of these studies suggest that increasing the time and content relative to the topic yields knowledge and skill improvement which ultimately should improve patient care. The PDs of professional athletic training programs can improve their curricula by incorporating gender minority and transgender specific health care education seamlessly throughout their course of study. We have provided a sample in Table 5 of how educators could integrate and scaffold the topics of gender minority care throughout the program, which could influence knowledge and behavior changes on the subject for future health care providers. Further, there is support for adding gender minority health content into health care curricula, as it has been shown to improve students' preparation to manage gender minority health concerns.³⁶

Of the PDs who reported their program taught about gender minority patient care, the most reported teaching methods used to teach students how to care for transgender patients were the same as PCC, class discussion, case-based and problem-based learning, and lecturing. Class discussion and case-based learning techniques are active learning approaches that can help students develop crucial skills for successful clinical practice, such as evaluation, creativity, and analysis.⁴³ By having athletic training students participate in these active learning activities, PDs and instructors foster students' self-confidence and communication and collaboration skills.⁴³ As for the assessment of transgender patient care, there was a discrepancy between PD and student responses. Almost 90% of PDs said their professional athletic training program assessed students on transgender patient care, whereas 60% of students reported they were assessed on the subject. Assessing students on a topic and the weight of the assessment are vital as they motivate students to learn a subject.⁶¹ Further, assessments given at multiple time points can enhance the retention of information.^{62,63} Based on this research, PDs should assess students on transgender patient care and, more importantly, notify the students that they will be assessed on the topic.

Many students who both learned and did not learn about transgender patient care reported they were comfortable caring for the transgender population. Fewer students reported they felt competent with specific aspects of transgender patient care, such as policies for hormone replacement therapy and sport participation, drug screening, and inter-professional collaboration with an endocrinologist. Nye et al³² reported similar findings that credentialed athletic trainers felt comfortable caring for patients who are transgender but reported less competence with certain aspects of care. Berry et al's research on athletic trainers in the collegiate and university setting regarding transgender patient care identified the following aspects of care in which athletic trainers felt incompetent: using appropriate terminology, the effects of hormone replacement therapy on sport participation, counseling on mental health concerns, and working with an endocrinologist.³⁴ The lack of competence reported in our study and by professional athletic trainers in other studies may support that, even though some students are educated on transgender patient care, PDs and instructors should consider making changes to their instructional content or teaching methods to better prepare students to provide care for these patients in their reported deficiency areas.

To address this lack of competence, PDs should include education on these specific areas of care in ways that could

increase students' feelings of competence. The 2020 CAATE standards include Standard 74, requiring athletic training programs to teach about pharmacology, so PDs and instructors can use this opportunity to teach students about hormone replacement therapy, which is needed because, using a 2015 survey, researchers reported that 71% of transgender men and women were more likely to have used hormone replacement therapy.^{7,24} Educational efforts that have demonstrated the ability to increase the competency of students in other health care fields support the use of active learning, particularly problem-based learning and high-fidelity simulation.^{64,65} We suggest that PDs could incorporate more active learning techniques such as game-based learning, problem-based learning, case-based learning, team-based learning, and or flipped classroom to enhance athletic training students' perceived competence with these specific aspects of transgender care.⁶⁶

However, taking an upstream approach to the athletic training students' lack of competence begins with PDs who may teach this content to the athletic training students. Less than half of PD participants reported feeling competent teaching the background information and skills necessary to care for a transgender patient. Additionally, PD respondents expressed a lack of guidance as the most significant barrier in including or teaching transgender health care needs in their athletic training program curriculum. Similarly, athletic training students also felt a lack of guidance would affect their comfort in providing care to a transgender patient. Additional education for both PDs and athletic training students on transgender health care and health care provision could help address this general feeling of lack of guidance. Furthermore, according to the CAATE, it is the PDs' responsibility to have "contemporary expertise in athletic training," so PDs who do not feel competent with knowledge and skills needed to provide quality health care to patients who are transgender should ensure someone from their core faculty has content knowledge on the topic and/or seek out personal continuing professional development.⁷ There are educational resources provided by the NATA LGBTQ+ Advisory Committee available online that can help PDs, other educators, and athletic training students with how to care for transgender patients.⁶⁷ In addition, many college and university campuses, as well as the communities, have resources that can be used for inclusion training, gender minority health care clinics, and safe space support groups, which may benefit a program to use rather than developing these resources themselves. Widespread social change and promotion of health equity by the athletic training profession must occur on all levels in a professional athletic training program. We encourage PDs to be leaders who engage in difficult conversations, question, and change noninclusive practices, and foster an inclusive work environment for staff and an inclusive learning environment.⁶⁸ Actively working toward an inclusive athletic training program could promote a downstream effect of positive changes for the inclusion and health equity for transgender people.

Although half of the PDs who participated in this study include education about gender minority patients in their professional athletic training curricula, an additional 30% of participants said they were planning to integrate the content in the future; however, many PDs reported a lack of guidance to include gender minority content into their curricula. Areas for

Table 5. Transgender Patient Care Scaffolding Curriculum

Course	Topic	Key Points	Method of Teaching	Method of Assessment
Anatomy	Reproductive organs	Female to male transition Male to female transition Differences in sexual development	Online module, in-class lecture	Quiz, test, exam, or assignment
Assessment and evaluation of the lower extremity	Taking a history	Patient-centered care Inclusive history taking Terminology	Video modeling, mock scenario, expert lecture	Practical exam (skill, standardized patient)
Psychosocial strategies and referral	Mental health care needs	Gender affirming and inclusive language Patient-centered care Inclusive history taking Transgender mental health related needs Suicide	In-class lecture, simulation-based learning, readings, panel discussion	Practical exam (skill, standardized patient)
General medicine or pharmacology	Gender affirming pharmacological care	Gender dysphoria Patient-centered care Inclusive history taking Disparities Access to health care Gender affirming best practices (hormone therapy) Prevention (cardiovascular, cancer, STIs and STDs, safe sex, substance use, diet, and exercise)	In-class lecture, readings, expert lecture	Quiz, test, exam, or practical exam (skill, standardized patient)
Emergency management of illness and injury	Heat emergencies	Patient-centered care Inclusive history taking	In-class lecture, case-based and problem-based learning activity	Quiz, test, exam, or assignment
Organization and administration in athletic training	Sport participation, regulations, and legal concerns	Medication implications for exercise Unfair advantages in sport and misconceptions Laws and legal concerns	Mock scenario, readings, in-class lecture	Quiz, test, exam, practical exam, or assignment

professional athletic training program curricula expansion related to gender minority patients have been found in the literature involve asking for a patient's pronouns, fostering a safe environment in the health care facility, listening to the patient, making shared decisions, maintaining patient privacy, using inclusive language, avoid homonegativity and heteronormativity, awareness of mental health needs, and being knowledgeable about local resources for inclusive health care providers.^{31,33,34,69,70} Specifically for transgender patients, it is essential that professional athletic training curricula additionally incorporate the definition of transgender, misconceptions about advantages in sport, sport participation policies, health care disparities, barriers to care, gender-affirming language, preventative health care needs, mental health needs including gender dysphoria, gender-affirming care, and the long-term effects of various interventions.^{31,34,39,69} When students are learning about health risks faced by the transgender population, they need to understand that an underlying cause of the health risks is not necessarily being transgender, but living as a transgender person in a homophobic society.⁷¹ We suggest that PDs use the literature to guide how and what gender minority and transgender health care content to add to their curricula.

Limitations and Future Research

Our study was limited to PDs of athletic training programs and did not include other faculty or other instructors from the professional athletic training programs. Although PDs develop and implement the program curriculum, they may be unaware of the experiences of other instructors or the specific content of each course leading to a reporting bias of the PD. Additionally, the 2020 CAATE Standards were made effective on July 1, 2020. The time of this study was March to April 2020, meaning that it was not a professional obligation of professional athletic training programs to include PCC in the curricula.

In addition, we identified that most participants felt comfortable with transgender patient care. It may be assumed that this was due to selection bias for individuals that had a particular interest or concern with the transgender community. However, we feel it is important to note that the research team was mindful of this potential bias before the onset of the study. To negate the selection bias, the research team used general terminology specific to PCC to recruit both the PDs and athletic training students. We believe limiting the word *transgender* in all recruitment materials and consent forms helped to remove the potential that those reporting comfort in transgender patient care was only due to participants having an interest in the topic. Therefore, we believe our recruitment strategies helped to mitigate the selection bias typically identified in LGBTQ+ research. Moreover, there were some limitations to note from the survey itself. One item in the survey asked the participants if they believed in and taught athletic training students to treat patients equally. With the ever-changing landscape of social justice terminology, we feel it is important to note that the word choice of *equally* may be a limitation for this question, as equitable care is more conducive when discussing patient care. We suggest future researchers explore the differences in equal versus equitable PCC delivered by athletic trainers.

With this study, we provide support for the future development of educational resources for PDs of professional athletic

training programs in both PCC and gender minority patient care. Even though PCC is core health care competency, it does not guarantee that all PDs are knowledgeable about the scope of PCC and the link that education of PCC necessitates education on gender minority patients. Future researchers should explore the clinical preceptors' comfort, education, and clinical experience in providing PCC and treating transgender patients in addition to educational resources. This would help identify specific areas to advance professional development education for the clinical education component of the professional athletic training program. Lastly, research into the use of standardized patients to teach and assess athletic training students' knowledge and practice capabilities of PCC and transgender patient care is warranted as a more active opportunity to practice and evaluate these verbal and nonverbal health care skills.

CONCLUSIONS

Our findings indicate that PDs of professional athletic training programs consider PCC necessary, feel comfortable and competent teaching it to students, and create PCC-related educational and assessment experiences for athletic training students. Most athletic training student respondents said they learned about, felt comfortable, and competent in providing PCC. However, few athletic training students stated they practice PCC at their clinical education site, while all PDs reported that they believe students did practice it there. The PDs and athletic training students agreed that transgender health care is an important topic to learn about in professional athletic training education, but only half of PDs said their program teaches gender minority content. The PDs expressed a lack of guidance and knowledge on teaching or adding transgender health care needs into their curricula. Consequently, professional athletic training students also reported feeling a lack of guidance when providing care to a transgender patient. The PDs from professional athletic training programs should provide a pedagogical foundation for students to grow from and support the effort to end health care disparities for the transgender population.

REFERENCES

1. Selix NW, Rowniak S. Provision of patient-centered transgender care. *J Midwifery Womens Health*. 2016;61(6):744–751. doi:10.1111/jmwh.12518
2. Constand MK, MacDermid JC, Dal Bello-Haas V, Law M. Scoping review of patient-centered care approaches in health-care. *BMC Health Serv Res*. 2014;14:271. doi:10.1186/1472-6963-14-271
3. Laursen RM. A patient-centered model for delivery of athletic training services. *Int J Athl Ther Train*. 2010;15(3):1–3. doi:10.1123/att.15.3.1
4. Stewart M, Brown JB, Weston W, McWhinney IR, McWilliam CL, Freeman T. *Patient-Centered Medicine: Transforming the Clinical Method*. 3rd ed. CRC Press Taylor & Francis Group; 2013.
5. Institute of Medicine. *Crossing the Quality Chasm: A New Health System for the 21st Century*. National Academies Press; 2001. doi:10.1136/bmj.323.7322.1192
6. Levinson W, Lesser CS, Epstein RM. Developing physician communication skills for patient-centered care. *Health Aff (Millwood)*. 2010;29(7):1310–1318. doi:10.1377/hlthaff.2009.0450

7. Commission on Accreditation of Athletic Training Education. 2020 Standards for Accreditation of Professional Athletic Training Programs. Published 2018. Updated July 2019. Accessed August 18, 2021. <https://caate.net/wp-content/uploads/2019/08/2020-Standards-Final-7-15-2019.pdf>.
8. Welch Bacon CE, Cavallario JM, Walker SE, Bay RC, Van Lunen BL. Core competency-related professional behaviors during patient encounters: a report from the AATE research network. *J Athl Train*. 2021. doi:10.4085/542-20
9. Cavallario JM, Van Lunen BL, Hoch JM, Hoch M, Manspeaker SA, Pribesh SL. Athletic training student core competency implementation during patient encounters. *J Athl Train*. 2018;53(3):282–291. doi:10.4085/1062-6050-314-16
10. Cavallario JM, Van Lunen BL, Manspeaker SA. Effect of procedure type on core competency implementation by athletic training students. *Athl Train Educ J*. 2019;14(3):208–214. doi:10.4085/1403208
11. Athletic Training Strategic Alliance Inter-Agency Terminology Work Group. Athletic training glossary. Updated 2020. Accessed August 18, 2021. https://bocac.org/system/document_versions/versions/200/original/inter-agency-terminology-glossary-20190717.pdf?1563378992
12. Dowshen N, Meadows R, Byrnes M, Hawkins L, Eder J, Noonan K. Policy perspective: Ensuring comprehensive care and support for gender nonconforming children and adolescents. *Transgend Health*. 2016;1(1):75–85. doi:10.1089/trgh.2016.0002
13. McKay B. Lesbian, gay, bisexual, and transgender health issues, disparities, and information resources. *Med Ref Serv Q*. 2011;30(4):393–401. doi:10.1080/02763869.2011.608971
14. Sexual and gender minority: terms and definitions. National Institutes of Health Office of Equity, Diversity, and Inclusion. Accessed August 16, 2021. <https://www.edi.nih.gov/people/sep/lgbti/safezone/terminology>.
15. Glossary of terms. Human Rights Campaign. Updated 2020. Accessed August 16, 2021. <https://www.hrc.org/resources/glossary-of-terms>.
16. Harper J. Athletic gender. *Law Contemp Probl*. 2017;80:139–153.
17. Terminology. Centers for Disease Control and Prevention. Updated December 18 2019. Accessed August 16, 2021. <https://www.cdc.gov/healthyyouth/terminology/sexual-and-gender-identity-terms.htm>.
18. Dubin SN, Nolan IT, Streed CG Jr, Greene RE, Radix AE, Morrison SD. Transgender health care: improving medical students' and residents' training and awareness. *Adv Med Educ Pract*. 2018;9:377–391. doi:10.2147/AMEP.S147183
19. Institute of Medicine. *The Health of Lesbian, Gay, Bisexual, and Transgender People: Building a Foundation for Better Understanding*. Vol 10. The National Academies Press; 2011. doi:10.17226/13128
20. Meerwijk EL, Sevelius JM. Transgender population size in the United States: a meta-regression of population-based probability samples. *Am J Public Health*. 2017;107(2):e1–e8. doi:10.2105/AJPH.2016.303578
21. Herman JL, Flores AR, Brown TNT, Wilson BDM, Conron KJ. *Age of Individuals Who Identify as Transgender in the United States*. The Williams Institute; 2017.
22. Ensign KA, Dodge BM, Herbenick D, Docherty CL. Development of an instrument to assess athletic trainers' attitudes toward transgender patients. *J Athl Train*. 2018;53(4):431–436. doi:10.4085/1062-6050-496-16
23. Safer JD, Coleman E, Feldman J, et al. Barriers to healthcare for transgender individuals. *Curr Opin Endocrinol Diabetes Obes*. 2016;23(2):168–171. doi:10.1097/MED.0000000000000227
24. James S, Herman J, Rankin S, Keisling M, Mottet L, Anafi M. *The Report of the 2015 U.S. Transgender Survey*. National Center for Transgender Equality; 2016.
25. Institute of Medicine. *Health Professions Education: A Bridge to Quality*. The National Academies Press; 2003.
26. Feldman J, Brown GR, Deutsch MB, et al. Priorities for transgender medical and healthcare research. *Curr Opin Endocrinol Diabetes Obes*. 2016;23(2):180–187. doi:10.1097/MED.0000000000000231
27. Chan B, Skocylas R, Safer JD. Gaps in transgender medicine content identified among Canadian medical school curricula. *Transgend Health*. 2016;1(1):142–150. doi:10.1089/trgh.2016.0010
28. Munson E, Ensign K. Experiences of transgender athletes in the athletic training setting: A qualitative study. *J Athl Train*. 2019;54:S–74.
29. Gerteis M, Edgman-Levitan S, Daley J, Delbanco TL. *Through the Patient's Eyes: Understanding and Promoting Patient-Centered Care*. 1st ed. Jossey-Bass; 1993.
30. O'Neill N. The eight principles of patient-centered care. Oneview Healthcare Web site. Published 2015. Updated May 15 2015. Accessed August 18, 2021. <https://www.oneviewhealthcare.com/the-eight-principles-of-patient-centered-care/>.
31. Munson EE, Ensign KA. Transgender athletes' experiences with health care in the athletic training setting. *J Athl Train*. 2021;56(1):101–111. doi:10.4085/1062-6050-0562-19
32. Nye EA, Crossway A, Rogers SM, Games KE, Eberman LE. Lesbian, gay, bisexual, transgender, and queer patients: collegiate athletic trainers' perceptions. *J Athl Train*. 2019;54(3):334–344. doi:10.4085/1062-6050-260-17
33. Maurer-Starks SS, Clemons HL, Whalen SL. Managing heteronormativity and homonegativity in athletic training: in and beyond the classroom. *J Athl Train*. 2008;43(3):326–336. doi:10.4085/1062-6050-43.3.326
34. Walen DR, Nye EA, Rogers SM, et al. Athletic trainers' competence, education, and perceptions regarding transgender student-athlete patient care. *J Athl Train*. 2020;55(11):1142–1152. doi:10.4085/1062-6050-147-19
35. Rogers SM, Crossway AK, Aronson PA. Creating a LGBTQ+ inclusive culture in the athletic training facility. *Clin Pract Athl Train*. 2018;1(1):11–14. doi:10.31622/2018/0001.3
36. Kelley L, Chou CL, Dibble SL, Robertson PA. A critical intervention in lesbian, gay, bisexual, and transgender health: knowledge and attitude outcomes among second-year medical students. *Teach Learn Med*. 2008;20(3):248–253. doi:10.1080/10401330802199567
37. von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *Epidemiology*. 2007;18(6):800–804. doi:10.1097/EDE.0b013e3181577654
38. Cooper MB, Chacko M, Christner J. Incorporating LGBT health in an undergraduate medical education curriculum through the construct of social determinants of health. *MedEd-PORTAL*. 2018;14:10781. doi:10.15766/mep_2374-8265.10781
39. McDowell A, Bower KM. Transgender health care for nurses: an innovative approach to diversifying nursing curricula to address health inequities. *J Nurs Educ*. 2016;55(8):476–479. doi:10.3928/01484834-20160715-11
40. Obedin-Maliver J, Goldsmith ES, Stewart L, et al. Lesbian, gay, bisexual, and transgender-related content in undergraduate

- medical education. *JAMA*. 2011;306(9):971–977. doi:10.1001/jama.2011.1255
41. Salkind J, Gishen F, Drage G, Kavanagh J, Potts HWW. LGBT+ health teaching within the undergraduate medical curriculum. *Int J Environ Res Public Health*. 2019;16(13):2305. doi:10.3390/ijerph16132305
 42. Hayes V, Blondeau W, Bing-You RG. Assessment of medical student and resident/fellow knowledge, comfort, and training with sexual history taking in LGBTQ patients. *Fam Med*. 2015;47(5):383–387.
 43. Harris N, Welch Bacon CE. Developing cognitive skills through active learning: a systematic review of health care professions. *Athl Train Educ J*. 2019;14(2):135–148. doi:10.4085/1402135
 44. Vance SR, Halpern-Felsher BL, Rosenthal SM. Health care providers' comfort with and barriers to care of transgender youth. *J Adolesc Health*. 2015;56(2):251–253. doi:10.1016/j.jadohealth.2014.11.002.
 45. Commission on Accreditation of Athletic Training Education. Statement on developing new accreditation standards regarding diversity, equity, inclusion, and social justice. Published 2020. Accessed June 30, 2021. <https://caate.net/wp-content/uploads/2020/12/DEI-Standards-Messaging-Dec2020.pdf>.
 46. Braveman P. Health disparities and health equity: concepts and measurement. *Annu Rev Public Health*. 2006;27(1):167–194. doi:10.1146/annurev.publhealth.27.021405.102103
 47. Green W, Sauers E. Meeting personal health care needs in primary care: a response from the athletic training profession. *Athl Train Educ J*. 2020;15(4):278–288. doi:10.4085/1947-380X-82-19
 48. Fosnot CT. *Constructivism: Theory, Perspectives, and Practice*. 2nd ed. Teachers College Press; 2013.
 49. Armstrong KJ, Weidner TG, Walker SE. Athletic training approved clinical instructors' reports of real-time opportunities for evaluating clinical proficiencies. *J Athl Train*. 2009;44(6):630–638. doi:10.4085/1062-6050-44.6.630
 50. Burton CA, Winkelmann ZK, Eberman LE. Advancement of athletic training clinical education through preceptor-led instructional strategies. *Athl Train Educ J*. 2019;14(3):223–232. doi:10.4085/1403223
 51. Patient-centered care for transgender people: recommended practices for health care settings. Centers for Disease Control and Prevention. Updated April 1, 2020. Accessed July 19, 2021. <https://www.cdc.gov/hiv/clinicians/transforming-health/health-care-providers/affirmative-care.html#strategies>.
 52. Saucier D, Paré L, Côté L, Baillargeon L. How core competencies are taught during clinical supervision: participatory action research in family medicine. *Med Educ*. 2012;46(12):1194–1205. doi:10.1111/medu.12017
 53. Hallas D, Biesecker B, Brennan M, Newland JA, Haber J. Evaluation of the clinical hour requirement and attainment of core clinical competencies by nurse practitioner students. *J Am Acad Nurse Pract*. 2012;24(9):544–553. doi:10.1111/j.1745-7599.2012.00730.x
 54. Redinger AS, Winkelmann ZK, Eberman LE. Collegiate student-athletes' perceptions of patient-centered care delivered by athletic trainers. *J Athl Train*. 2020;56(5):499–507. doi:10.4085/130-20
 55. Wilson CJ, Eberman LE, Redinger AS, Neil ER, Winkelmann ZK. Athletic trainers' viewpoints of patient-centered care. *J Athl Train*. 2021;56:S–13. doi:10.4085/1062-6050-56.6s.S-1
 56. Bush JM, Walker SE, Sims-Koenig KN, Winkelmann ZK, Eberman LE. Postprofessional learners' reflections after a standardized patient encounter and debriefing session. *Athl Train Educ J*. 2019;14(1):55–63. doi:10.4085/140155
 57. Nottingham SL, Kasamatsu TM, Montgomery MM. Athletic training students' and preceptors' perceptions of active learning time and bug-in-ear technology during clinical education experiences. *Athl Train Educ J*. 2017;12(4):216–224. doi:10.4085/1204216
 58. Kawaguchi JK. Video analysis of athletic training student performance: changing educational competency into clinical proficiency. *Athl Train Educ J*. 2009;4(4):157–161. doi:10.4085/1947-380X-4.4.157
 59. Lim F, Johnson M, Eliason M. A national survey of faculty knowledge, experience, and readiness for teaching lesbian, gay, bisexual, and transgender health in baccalaureate nursing programs. *Nurs Educ Perspect*. 2015;36(3):144–152. doi:10.5480/14-1355
 60. Roth LT, Catalozzi M, Soren K, Lane M, Friedman S. Bridging the gap in graduate medical education: a longitudinal pediatric LGBTQ health curriculum. *Acad Pediatr*. 2021. doi:10.1016/j.acap.2021.05.027
 61. Wormald BW, Schoeman S, Somasunderam A, Penn M. Assessment drives learning: an unavoidable truth? *Anat Sci Ed*. 2009;2(5):199–204. doi:10.1002/ase.102
 62. Wheeler MA, Roediger HL III. Disparate effects of repeated testing: Reconciling Ballard's (1913) and Bartlett's (1932) results. *Psychol Sci*. 1992;3(4):240–246. doi:10.1111/j.1467-9280.1992.tb00036.x
 63. Karpicke JD, Roediger HL 3rd. Expanding retrieval practice promotes short-term retention, but equally spaced retrieval enhances long-term retention. *J Exp Psychol Learn Mem Cogn*. 2007;33(4):704–719. doi:10.1037/0278-7393.33.4.704
 64. Ho DWL, Whitehill TL, Ciocca V. Performance of speech-language pathology students in problem-based learning tutorials and in clinical practice. *Clin Linguist Phon*. 2014;28(1–2):102–116. doi:10.3109/02699206.2013.812146
 65. Shin H, Sok S, Hyun KS, Kim MJ. Competency and an active learning program in undergraduate nursing education. *J Adv Nurs*. 2015;71(3):591–598. doi:10.1111/jan.12564
 66. Thompson GA, Ayers SF. Measuring student engagement in a flipped athletic training classroom. *Athl Train Educ J*. 2015;10(4):315–322. doi:10.4085/1004315
 67. Resources. National Athletic Trainers' Association. Updated 2021. Accessed August 16, 2021. <https://www.nata.org/professional-interests/inclusion/resources>.
 68. Cunningham G. LGBT inclusive athletic departments as agents of social change. *JIS*. 2015;8(1):43–56. doi:10.1123/jis.2014-0131
 69. Eberman LE, Winkelmann ZK, Nye EA, Walen DR, Granger KC, Walker SE. Athletic trainer compassion but lack of preparedness to provide transgender patient care. *J Athl Train*. 2021;56(3):252–262. doi:10.4085/1062-6050-0501-20
 70. Crossway A, Rogers SM, Nye EA, Games KE, Eberman LE. Lesbian, gay, bisexual, transgender, and queer athletic trainers: Collegiate student-athletes' perceptions. *J Athl Train*. 2019;54(3):324–333. doi:10.4085/1062-6050-259-17
 71. Puddester D. Caring for lesbian and gay people: a clinical guide. *CMAJ*. 2003;169(1):49.