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Board of Certification Examination Achievement Gaps as a Barrier to Diversifying the Athletic Training Profession

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Context: Achievement gaps have been well documented in the medical and health professions. Previous researchers have indicated that individuals from underrepresented minority groups consistently fall short of White candidates in performance on standardized credentialing examinations.

Objective: To determine the relative risk of failure by ethnicity and first-time and retake pass rates on the Board of Certification (BOC) examination.

Design: Descriptive study.

Setting: Professional master's degree athletic training programs.

Patients or Other Participants: A total of 3742 unique candidates with 4425 attempts between examination windows 1 of 2011–2012 (April) and 5 of the 2019–2020 (February) cycle of the BOC examination.

Main Outcome Measure(s): Ethnicity as self-selected by the candidates, attempt number, result of each attempt, year, and testing window.

Results: Examination candidates self-identified as White (60.4%, n = 2261/3742), unknown (ie, withheld an ethnicity selection; 10.6%, n = 395/3742), Hispanic (8.6%, n = 320/3742), or African American (8.4%, n = 313/3742). On the first attempt, White candidates passed at a rate of 93.2% (2107/2261), African American candidates at 74.8% (234/313), and Hispanic candidates at 86.9% (278/320; overall first-time pass rate for this subsample = 90.5%, 2619/2894). The relative risk of first-attempt failure was higher for African Americans than for both White (relative risk = 3.706, 95% CI = 2.903, 4.730; $P < .001$) and Hispanic (relative risk = 1.923, 95% CI = 1.368, 2.703; $P > .001$) candidates. For Hispanic candidates, the relative risk of first-attempt failure was about 50% lower than for White candidates (relative risk = 0.519, 95% CI = 0.377, 0.715; $P < .001$).

Conclusions: Achievement gaps existed between White candidates and those from ethnic minority groups in athletic training. Diversification of the athletic training workforce will require ensuring equity in preparation for and success on the BOC examination.

Key Words: race, ethnicity, equity, standardized testing

Key Points

- The relative risk of first-attempt failure was highest for African American candidates.
- African American candidates had the highest relative risk of failure on retake examinations.
- Achievement gaps may bias admission standards, thereby affecting profession diversity and program viability.
- The Athletic Training Strategic Alliance should consider structural modifications to avert the effects of achievement gaps.

Health disparities have been linked to a lack of diversity among health care providers. The role of diversity in diminishing health disparities is grounded in the principle that health administrators from ethnic minority groups are more likely to organize health care delivery systems that meet the needs of patients from underrepresented minority groups.[1] Furthermore, providers from ethnic minority groups are more likely to care for patients from underrepresented minority groups, practice clinically in impoverished areas, and provide more effective care to patients of their own ethnicity.[2–4] However, despite continuing efforts to improve the diversity in the health care workforce, individuals from racial or ethnic minority groups continue to be underrepresented in the health professions. For example, 80.8% of physician assistants,[5] 84.3% of physical therapists,[6] and 81.5% of athletic trainers (ATs)[7] self-identified as non-Hispanic White. These demographics fail to reflect the increasing diversity of the US population and perpetuate a crucial demand for qualified individuals from underrepresented ethnic groups to enter the health professions.

Higher education serves as a fundamental pathway to social mobility and economic opportunity in the United States. However, unfortunately, achievement and opportunity gaps are often influenced by disparities in the experiences of students in their K–12 education. Inequities are embedded in the educational laws, policies, and institutions of the United States, which often oppress underrepresented minority students in separate and unequal educational experiences. Individuals from underrepresented

minority groups were more likely to attend schools that lacked instructional resources, including adequate funding and resource allocation in addition to skilled teachers and quality curricula.[8] As a result, a disparity in academic performance occurs between White students and those from underrepresented minority groups. Most pronounced in mathematics and science, these achievement gaps can be displayed through grades, standardized test scores, and other academic success measures.[9] Subtle inequalities in achievement are present at the start of a child's education and, by the end of fifth grade, are already sufficient to begin separating students who are White and those from underrepresented minority groups.[9]

As students from underrepresented minority groups age and progress through the educational system, psychological distress becomes more prevalent.[9] Awareness of the achievement gap results in stress and anxiety for highly motivated students who are threatened by the potential for confirming negative stereotypes about academic performance by their racial or ethnic group. These emotions can place higher demands on their mental resources and subsequently impede performance. Furthermore, their attempts to suppress these negative thoughts can overload working memory, leading to performance deficits on cognitively demanding tasks, particularly on tests of learned knowledge.[10,11] Stereotype threat can negatively affect test-taking skills, such as test-wiseness, memory, and time management for students from underrepresented minority groups.[9] Deficits in these technical skills may lead to underperformance, particularly in health professions education, which requires prerequisite knowledge of mathematics and science. The effects of stereotype threat are potentially devastating for students from underrepresented minority groups who rely on high-stakes standardized examinations to enter the medical and health professions.[9]

Students from underrepresented minority groups in schools of health professions performed markedly worse on credentialing and licensing examinations than their White counterparts. For example, nursing programs with higher percentages of White students were more likely to have higher pass rates on the National Council Licensure Examination for Registered Nurses (NCLEX-RN) than nursing programs with smaller percentages.[12] Investigators of predictors of success in nursing education established that, while 58 students, or 92.1% (n = 63), of White students passed the NCLEX-RN on the first attempt, only 6 African American students, or 60% (n = 10), did the same.[12] Underperformance on credentialing and licensure examinations by those from racial and ethnic minority groups appears to hold true even when students have been admitted into graduate programs based on their grade point average, Graduate Record Examination scores, or both. Students from underrepresented minority groups accounted for nearly half of all medical students who initially failed Step 1 of the United States Medical Licensing Examination.[13] Furthermore, when controlling for other factors, the odds of failing the National Physical Therapy Examination were more than 200% higher for students who self-identified as African American, Asian or Pacific Islander, or other than for non-Hispanic White and Hispanic students across 20 physical therapy education programs.[14] Additionally, Cook et al[15] found that less programmatic racial diversity was associated with higher pass rates across 185 Commission on Accreditation in Physical Therapy Education–accredited programs.

Athletic training may be no exception to these achievement gaps. Previous researchers have highlighted the achievement gap in Board of Certification (BOC) pass rates, which is worrisome. The BOC has reported the first-time and overall 3-year aggregate pass rates of African Americans as 22.6% and 23.4% lower, respectively, than those of White candidates during the 2017–2018 through 2019–2020 examination cycles.[16] Furthermore, the authors[16] of a recent study of a single professional master's athletic training program observed the 3-year aggregate of first-time BOC pass rates during the same 3-year interval was only 70.5% (n = 24/34). A closer examination of these data revealed that, of the 10 students who failed the BOC examination on the first attempt, 70% (7/10) identified as non-White.[16] To our knowledge, no current literature exists beyond the case study by Adams et al,[16] who investigated the potential relationship between ethnicity and BOC examination pass rates across athletic training programs. Therefore, the purpose of our research study was to address the following research question: In professional master's candidates challenging the BOC examination, what was the relative risk of failure between White candidates and those from underrepresented minority groups? We hypothesized that ethnicity serves as a sociocultural barrier to successfully challenging the BOC examination, subsequently affecting the social and economic mobility of athletic training program graduates and the diversity of the athletic training workforce.

METHODS

We used a nonexperimental, descriptive, retrospective analysis to examine first-time and unsuccessful attempts at the BOC examination with respect to ethnicity.

Participants and Programs

Section 45 CFR 46.102 of The New Common Rule indicated that deidentified, publicly available data do not constitute human subjects research, and as such, ethical review was not required. Participants consisted of 3742 unique candidates with 4425 attempts between examination windows 1 of 2011–2012 (April) and 5 of the 2019–2020 (February) cycle for the BOC examination. All candidates had qualified for the examination by completing a professional master's degree in athletic training.

With the recent transition to standardize the delivery of professional-level education at the master's degree, it should be noted that the number of professional master's programs has increased from 31 in the 2012–2013 academic year to 192 in 2019–2020. Although students matriculated in both bachelor's and master's degree programs during this time, this subset of data constitutes the future of the educational landscape, and thus, bachelor's degree-eligible candidates were excluded. The largest number of test attempts per academic year was in 2019–2020 (n = 1003/4425, 22.7%). Due to a change in the number and content of athletic training domains during the study period, the BOC Practice Analysis was updated. Candidates who completed the examination in window 1 (April) 2017–2018 or prior were assessed via the 6th edition of the *Practice Analysis* (*PA6*), whereas candidates

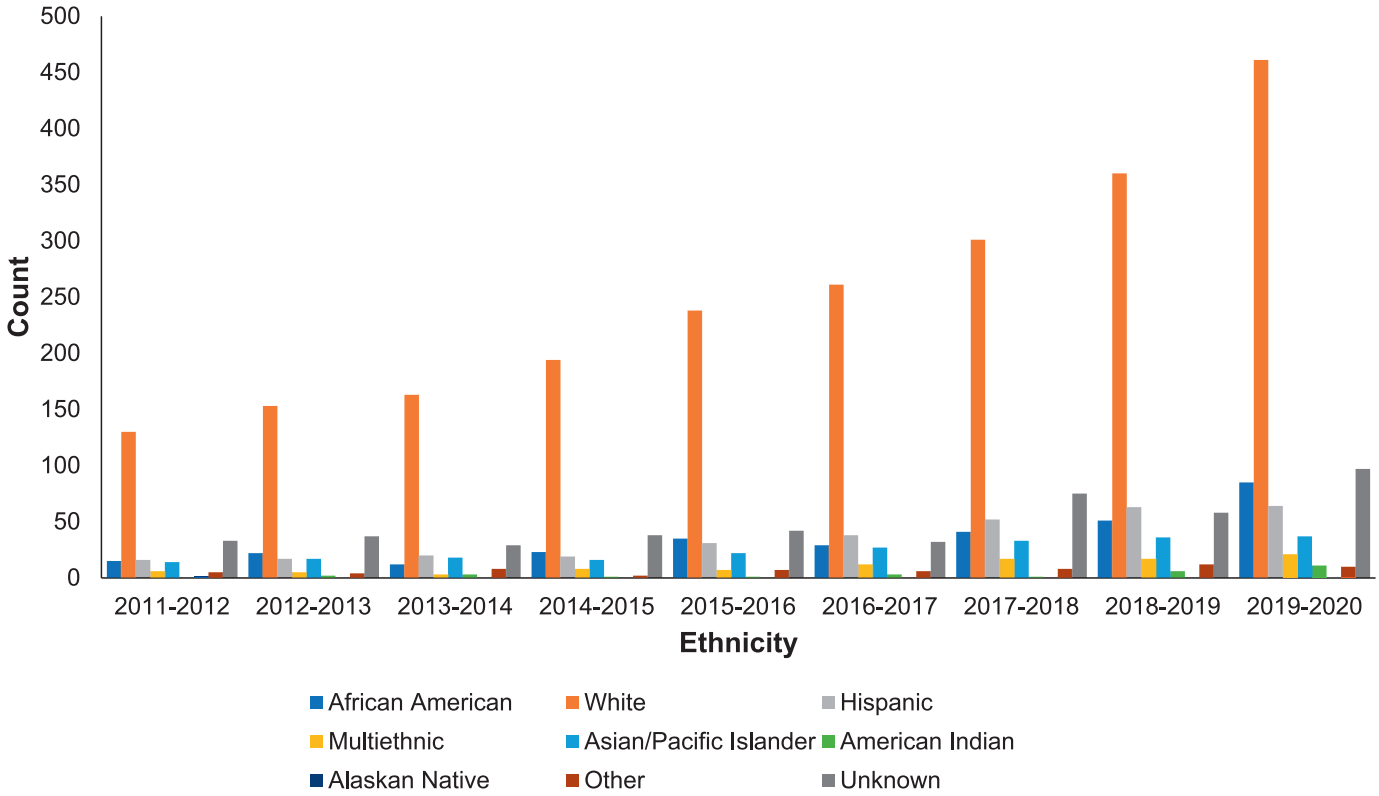

Figure 1. Ethnic diversity over examination cycle.

who completed the exam in later windows were evaluated using the 7th edition of the *Practice Analysis* (*PA7*).

Data Retrieved

All demographic data during the time of the study were characterized by ethnicity using the BOC self-report selection options. *Ethnicity* was operationally defined by the BOC as a social construct that divides individuals into smaller social groups based on characteristics such as a shared sense of group membership, values, behavioral patterns, language, political and economic interests, history, and ancestral geographical base. Self-report selection categories were mirrored from the United States Census: *White*, *African American*, *Hispanic*, *Asian or Pacific Islander*, *American Indian*, *Alaskan Native*, *multiethnic*, or *unknown*.

Procedures

We requested the variables of interest from the BOC, which included a random identifier to analyze those with multiple attempts in addition to ethnicity, attempt, result, year, and examination window. Upon receipt of the data, we conducted a preliminary descriptive analysis to ensure its accuracy. We corresponded with the BOC to confirm that we were interpreting the descriptive analysis accurately and then conducted a thorough analysis of the data. The data were shared in August of 2020 and analyzed between October 2020 and January 2021.

Data Analysis

We calculated descriptive statistics to determine the rate at which each ethnic group passed or failed on the first attempt at the BOC examination. We compared first-attempt performance across years and between versions of the Practice Analysis using χ^2 analyses. We calculated the relative risk of failure with 95% CIs to evaluate whether a particular ethnic group was likely to fail on the first attempt or retake attempt of the BOC examination. Due to sample-size differences across the various ethnic groups, comparisons of ethnic groups were performed only among White, African American, and Hispanic populations. Significance was set at $P < .05$ a priori.

RESULTS

Among the 4425 attempts, 3372 of 3742 candidates achieved first-time success (overall first-time pass rate = 90.1%), and 372 candidates experienced 683 retake attempts (range = 1–13). Most first attempts were taken on content from *PA6* (60.8%, 2274/3742), during the 2019–2020 year (21.0%, 786/3742) and examination window 1 (April; 59.7%, n = 2234/3742). Most first-attempt examination candidates self-identified as White (60.4%, n = 2261/3742), unknown (ie, withheld an ethnicity selection; 10.6%, n = 395/3742), Hispanic (8.6%, n = 320/3742), or African American (8.4%, n = 313/3742) ethnicity. On average, the ethnic diversity of first-attempt examination candidates increased from the 2011–2012 to the 2019–2020 exam cycle (Figure 1).

We identified that, on the first attempt, White students passed at a rate of 93.2% (2107/2261), African American students at a rate of 74.8% (234/313), and Hispanic students at a rate of 86.9% (278/320; the overall first-time pass rate for this subsample = 90.5%, 2619/2894). The relative risk of first-attempt failure was higher for African American

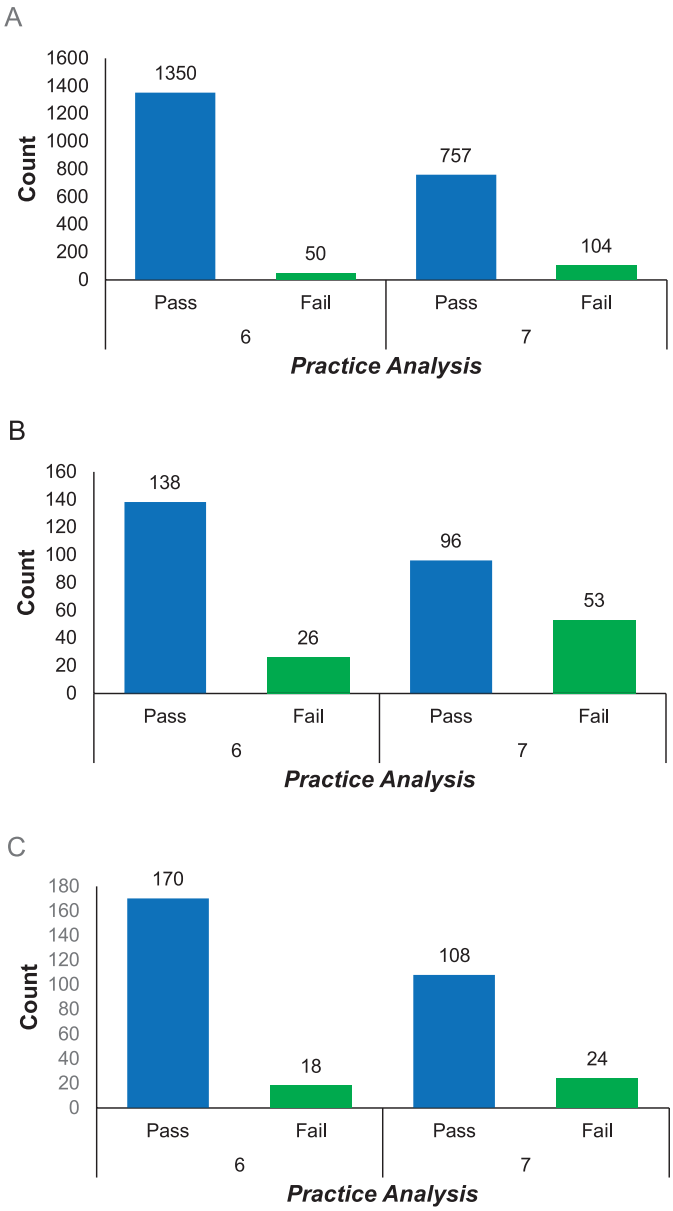

Figure 2. Association between ethnicity and practice analysis. A, White candidates. B, African American candidates. C, Hispanic candidates.

students (relative risk = 3.706, 95% CI = 2.903, 4.730; $P <$ .001) than White students. The risk of failure was also higher for African American candidates than for Hispanic candidates on the first attempt at the examination (relative risk = 1.923, 95% CI = 1.368, 2.703; $P >$ .001). For Hispanic students, the relative risk of first-attempt failure was about 50% lower than for White students (relative risk = 0.519, 95% CI = 0.377, 0.715; $P <$ .001). A χ^2 test of independence showed a significant association between practice analysis and ethnicity ($\chi^2_{df=1} = 88.367$; $P <$ .001; Figure 2) as well as examination cycle and ethnicity ($\chi^2_{df=1} = 76.408$; $P <$ .001; Figure 3). The transition from the *PA*6 to the *PA*7 version of the examination appeared to affect all candidates poorly but no one ethnic population more than another.

When students pursued an examination retake, the relative risk of failure was 34.1% higher for African American students than for their White counterparts (relative risk = 1.341, 95% CI = 1.141, 1.575, $P <$ .001), while Hispanic students fared better on retake attempts (relative risk of failure = 0.854, 95% CI = 0.685, 1.065; $P =$ .179) than White students. African American students had a higher risk of failure on retake attempts than Hispanic students (relative risk = 1.145, 95% CI = 0.929, 1.412; $P =$ .183).

DISCUSSION

To our knowledge, we are the first to investigate the relative risk of failure on the BOC examination among ethnicities. Disparities existed in BOC examination performance that specifically hindered African American and Hispanic candidates from obtaining the certified athletic trainer credential and subsequently entering the athletic training workforce. Of particular concern is the fact that these achievement gaps persisted over the last decade as the number of professional master's athletic training programs increased more than 6-fold. Achievement disparities showed no signs of diminishing as programs continue to transition to professional education at the master's level. Even more worrisome is the acknowledgment that the acceleration of online and remote education secondary to the COVID-19 pandemic carries the rick of widening the existing achievement gaps. In addition to other systemic barriers, students from underrepresented minority groups often suffer from a digital divide due to unequal access to digital tools and inadequate skills to use digital tools for learning purposes.[17] Also, they often endure economic and structural divides that limit physical spaces to study and lack suitable instructional support from schools.[17] Considering the increased reliance on online and distance education models, these findings warrant forecasting on how the achievement gaps presented might persist through the use of these educational modalities. More importantly, educators and program administrators must look toward the future and consider as well as account for how the effects of the COVID-19 pandemic may disturb readiness in students from underrepresented minority groups recruited into athletic training programs.

Initial awareness of the achievement gaps in students' educational experiences can lead to underperformance secondary to the stress and anxiety created by negative stereotypes about their racial or ethnic group. The effect of this pressure can be enough to negatively affect the student's performance and result in failure on the BOC examination. Students from a demographic minority who fail to successfully challenge the BOC examination on the first attempt may enter a perpetual cycle of psychological distress, as evident by the fact that African American students continued to have a higher risk of failure on retake attempts than White or Hispanic students. After first-time failure, candidates could internalize, externalize, or both internalize and externalize these stereotypes to further reinforce stereotype threat and challenge success on future retake examinations. Previous researchers[18] have shown that candidates for the NCLEX-RN can be overcome with anguish after notification of failure.[18] This distress was costly to the individuals' psychosocial well-being. Specifically, candidates who failed the NCLEX-RN reported negative emotions, including feelings of loss and inade-

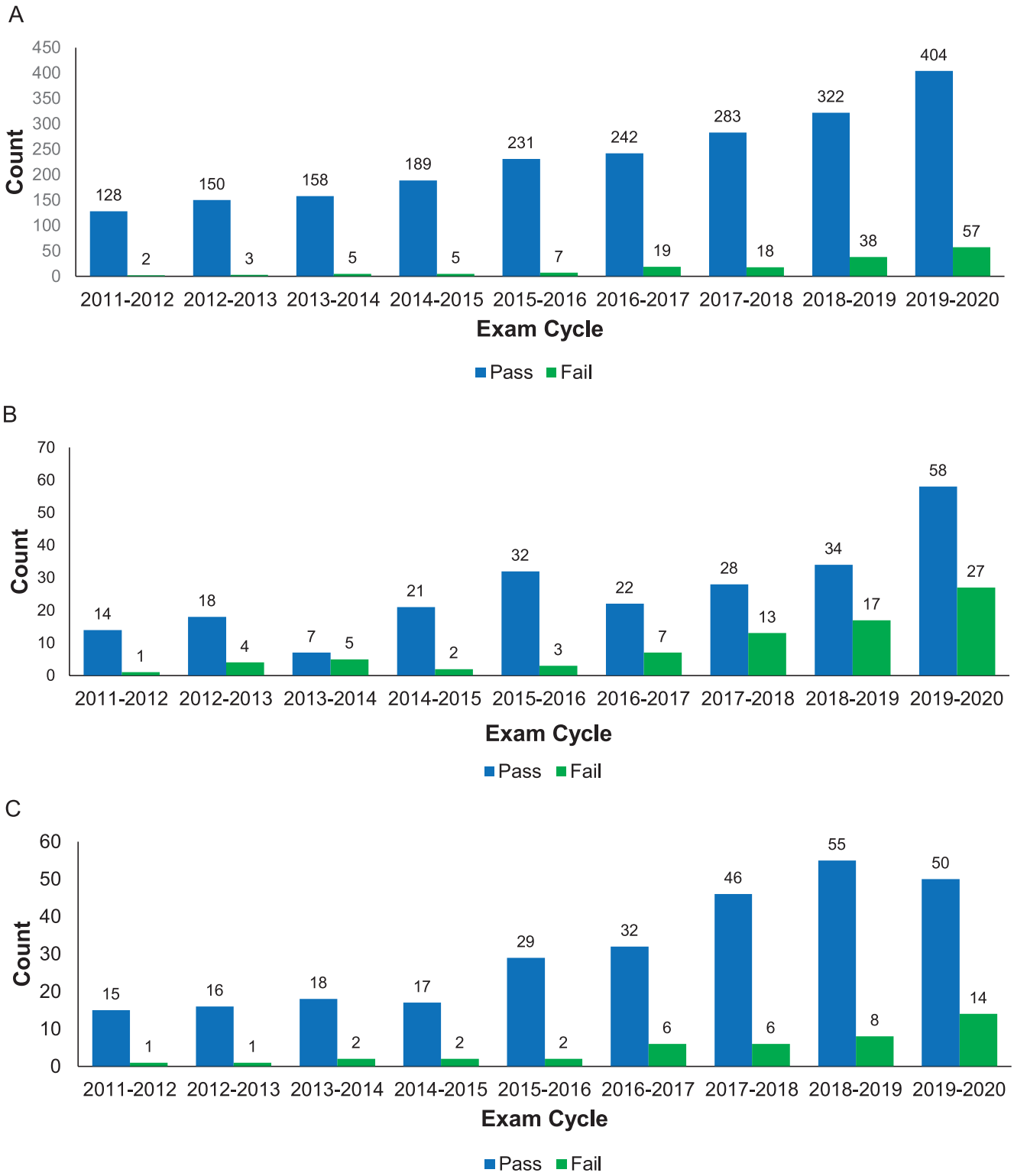

Figure 3. Association between ethnicity and examination cycle. A, White candidates. B, African American candidates. C, Hispanic candidates.

quacy as well as depression and isolation.[19,20] Such feelings of depression and isolation present psychological health concerns for any candidate but especially for the candidate from an ethnic minority group who is more likely to delay or fail to seek mental health treatment and less likely to have access to needed mental health services and quality mental health care.[21] In addition to these obstacles, a lack of employment may hinder a candidate's access to health insurance coverage and affordable behavioral health care. Moreover, feelings of embarrassment, loss, and social stigma and decreased self-esteem have also been described after failing the NCLEX-RN.[22] Similar to graduate nurses, athletic training candidates may then begin to suffer guilt over disappointing their professors, preceptors, peers,

family members, or all of these and thus avoid seeking their assistance in preparation for retake examinations. Collectively, these feelings and emotions coupled with stereotype threat may prevent further goal attainment.[18]

The benefits of social mobility and economic opportunities obtained from higher education cannot be achieved without successfully challenging the BOC examination. Failure on the BOC examination also presents challenging economic consequences to the individual candidate seeking athletic training certification. Candidates who fail the BOC examination on the first attempt and retake the examination must pay the $330 fee again.[23] Aside from the cost of another examination registration, many retake candidates incur the additional costs of remediation strategies such as the purchase of additional practice examinations, review courses, and study materials to avoid another failure.[18] Furthermore, retake candidates must wait until the next available examination window.[23] This waiting period can further delay students' transition to clinical practice and postpone their employment status as ATs. Delays in employment status may result in lost salary and the expected return in investment after graduation for candidates who have devoted substantial capital to tuition and fees at the graduate level.[18] Financial strain may be exacerbated if the student becomes eligible and responsible for repayment of student loan debt after completing graduate school.[18,19] These mounting expenses are concerns for any retake candidate but are worsened by the fact that those from ethnic minority groups are more likely to have a lower median household income and lower net worth.[20] The risk of losing students from underrepresented minority groups occurs at many timepoints across their educational journey, including at admission and enrollment as well as with program or examination persistence and completion. We believe these factors resulting from the achievement gap on the BOC examination present further substantial barriers to the persistence of individuals from underrepresented minority groups in the athletic training profession. Highlighting athletic training achievement gaps and their resulting consequences is a foundational first step to improving pass rates and bringing well-prepared, diverse ATs into the profession.

In recent years, the Athletic Training Strategic Alliance has placed increased emphasis on the importance of equality in age, gender, sexual orientation, race, ethnicity, and other cultural factors as a mechanism for both improving diversity in the athletic training profession and enhancing the delivery of quality patient-centered care.[24–27] The National Athletic Trainers' Association has developed several groups, including the Ethnic Diversity Advisory Committee and the Diversity, Equity, Inclusion, and Access Taskforce, dedicated to addressing concerns relevant to ethnically diverse populations. The Commission on Accreditation of Athletic Training Education (CAATE) has established the Diversity, Equity, Inclusion, and Leadership Development Committee and introduced curricular content standards, which intentionally focus on the adequate incorporation of diversity, equity, inclusion, and social justice across athletic training curricula. Similarly, the BOC has created an Inclusion, Diversity, Equity, and Advocacy Strategies Task Force whose work is aimed at exploring inclusion, diversity, and equity opportunities in the BOC, including analysis and alignment of the BOC's processes for collecting demographic information from examination candidates. The work of the Strategic Alliance affirms the need for research regarding racial and ethnic inequities in athletic training. However, to date, lacking in these initiatives is a direct acknowledgment of the achievement gap that exists in athletic training education, specifically as it relates to success on the BOC examination.

Accrediting bodies such as the CAATE exist to ensure that higher education programs maintain as well as improve quality standards of education. Toward these ends, they shoulder the responsibility of ensuring athletic training programs pursue and achieve diversity in accordance with the CAATE Standards and individual institutional and programmatic mission statements. We are optimistic that the new CAATE curricular content standards will help to rectify these inequities by ensuring that classroom environments are free of discrimination; valuing inclusion in the recruitment of diverse faculty, preceptors, and students; and developing curricula that advance diversity, equity, inclusion, and social justice in professional athletic training education.[28] However, we echo the concerns of Adams et al[16] that acknowledgment of this achievement gap in pass rates may have adverse effects on underrepresented minority groups. Pass rates of athletic training program graduates are used in Standards 6 and 7 as metrics for maintaining CAATE accreditation. In turn, programs that serve individuals from underrepresented minorities may be at risk of being placed on probation. Also, programs seeking to improve their student enrollment may develop biases against African American and Hispanic applicants, becoming less willing to accept students from these underrepresented minority groups into their programs out of fear of accreditation-related ramifications.[29] These possible consequences serve as problematic barriers to diversification of the athletic training profession. Removing Standards 6 and 7 would conflict with the spirit of programmatic accountability for preparing qualified providers and diversity initiatives. However, we recommend removing the punitive nature of these standards and instead requiring programs to be transparent in efforts to both prepare students as providers and diversify our profession.

We specifically see Standard Diversity, Equity, and Inclusion (DEI) 1[30] as an avenue for combating these concerns and influencing programs to advance diversity, equity, inclusion, and social justice in their design and delivery. With this standard, we promote the expectation of measurable outcomes through the assembly of program data that inform these efforts. We further suggest that, as part of this standard, athletic training programs publicly post diversity statistics and inclusion efforts for each cohort on their websites so that prospective students can effectively select programs that value and honor diversity and are committed to public accountability.[31] Standard DEI 1 provides examples of inclusion initiatives, including participating in institutional efforts to advance diversity, equity, inclusion, and social justice; integrating these concepts throughout the curriculum; and recruiting and retaining diverse faculty, students, and preceptors.[30] The standard further states that programs should collect data relative to demographic reports, retention reports, equity analysis, climate data, engagement in inclusion and social justice activities, and other factors.[30] The CAATE defines *identities* as inclusive of but not limited to race, ethnicity,

religion or spirituality, national origin, age, marital status, disability or ability, sexual orientation, sex, gender, gender identity and expression, socioeconomic status, political affiliation, and literacy or health literacy.[30] Programs should be encouraged to share demographic reports, including offering transparency about preparing students from minority groups to be successful in challenging the BOC examination as well as efforts to expand the diversity of their community (faculty, preceptors, and students) systematically and publicly.

Thoughtful discussion and analysis are needed within the athletic training community around this subject, though it is ultimately the roles of the BOC and the CAATE to prevent these findings from affecting athletic training program viability. Moreover, efforts to diversify the profession through open and transparent education should not dull the expectations of program accountability broadly but should include a multipronged effort. Without a doubt, programs should be training providers to be successful in challenging the examination but should also be held to public accountability by the consumer. Potential students should be able to identify exemplary programs in both diversity, equity, and inclusion and in preparing them to be successful providers.

Although top-down approaches are necessary, we also believe that grassroots efforts will be required to end the achievement gap in athletic training. Creating a diverse workforce of athletic training clinicians will require ensuring a diverse student body that is academically prepared to pass the BOC examination. We acknowledge the important role of athletic training programs in this mission. Previous researchers[32] revealed that athletic training program directors lacked the awareness needed to distinguish between equitable and equal resources. When it comes to diversity and inclusion, most program administrators took a "color-blind" approach, expressing the belief that all students should be treated the same, regardless of their ethnicity.[32] This ideology invalidates the specific needs of students from ethnic minority groups.[32] Athletic training programs must take ownership in the success of all students. This includes making intentional efforts to help candidates from ethnic minority groups assess and remediate their individual weaknesses and prepare for future attempts at the BOC examination, not only supporting them while part of the program but also after matriculating from their formal education if necessary. Although we do not assume that all students from ethnic minority groups will perform poorly on the BOC examination, we do expect that educators should understand the circumstances from which many athletic training students from ethnic minority groups enter professional programs and the consequences that result from persistent achievement gaps.

We seek to highlight the importance of this topic, yet we acknowledge that this study was not without limitations. Primarily, candidates were categorized using social constructs that may or may not accurately identify an individual's race, ethnicity, or cultural identity. The use of preselected options to collect data helped to create consistency in how candidates selected their ethnicity. However, in turn, it failed to provide an encompassing list of all available ethnic identities. Furthermore, a noteworthy number of candidates (10.6%, n = 395/3742) in the participant sample chose to withhold their ethnicity and were classified as *unknown*. We suspect that some candidates did not feel adequately represented by the list and preferred not to answer the question, whereas others may have been concerned about the potential for biased score reporting and stereotype threat. Future prospective data collectors should consider when these data are collected (ie, during registration, before or after the examination) and allow candidates to self-describe ethnicity. As the profession grows, common text field responses should be analyzed to expand self-report selection categories to reflect diverse candidate identities.

CONCLUSIONS

We explored the relative risk of failure on the BOC examination by ethnicity. We concluded that significant achievement gaps existed between African American candidates and White and Hispanic candidates on both initial and retake attempts. The consequences of examination failure include financial strain, psychological burden, potentially delayed transition to the workforce, and decreased retention in the athletic training profession. Future researchers should assess the effects of the COVID-19 pandemic on existing achievement gaps and encourage thoughtful discussion in addition to analysis of how these results may affect admission standards and program viability. Diversification of the athletic training workforce will require ensuring equity in preparation for and success on the BOC examination. We illuminate the achievement gap in success on the BOC examination not to exclude these students from athletic training recruitment efforts but to promote public accountability for taking action to assist candidates from underrepresented minority groups in successfully challenging the BOC examination and transitioning into the athletic training workforce.

REFERENCES

1. Nickens HW. The rationale for minority-targeted programs in medicine in the 1990s. *JAMA*. 1992:267(17):2390,2395. doi:10.1001/jama.267.17.2390
2. Komaromy M, Grumbach K, Drake M, et al. The role of Black and Hispanic physicians in providing health care for underserved populations. *N Engl J Med*. 1996;334(20):1305–1310. doi:10.1056/NEJM199605163342006
3. Saha S, Taggart SH, Komaromy M, Bindman AB. Do patients choose physicians of their own race? *Health Aff (Millwood)*. 2000;19(4):76–83. doi:10.1377/hlthaff.19.4.76
4. Betancourt JR, Green AR, Carrillo JE, Ananeh-Firempong O 2nd. Defining cultural competence: a practical framework for addressing racial/ethnic disparities in health and health care. *Public Health Rep*. 2003;118(4):293–302. doi:10.1093/phr/118.4.293
5. Statistical Profile of Certified PAs Annual Report 2020. National Commission on Certification of PAs. Accessed November 8, 2021. https://www.nccpa.net/wp-content/uploads/2021/07/Statistical-Profile-of-Certified-PAs-2020.pdf
6. APTA physical therapy workforce analysis. American Physical Therapy Association. Published December 2020. Accessed November 8, 2021. https://www.apta.org/contentassets/5997bfa5c8504df789fe4f1c01a717eb/apta-workforce-analysis-2020.pdf
7. Supporting diversity and cultural competence in athletic training. National Athletic Trainers' Association. Published April 2021. Accessed November 8, 2021. https://www.nata.org/sites/default/files/nata_diversityhandout_2021-min.pdf

8. Smedley BD, Stith AY, Colburn L, et al; Institute of Medicine (US). *The Right Thing to Do, The Smart Thing to Do: Enhancing Diversity in the Health Professions*. *Summary of the Symposium on Diversity in Health Professions in Honor of Herbert W. Nickens, MD*. National Academies Press; 2001.
9. Rodríguez BA. The threat of living up to expectations: analyzing the performance of Hispanic students on standardized exams. *J Hisp High Educ*. 2014;13(3):191–205. doi:10.1177/1538192714531292
10. Schmader T, Johns M. Converging evidence that stereotype threat reduces working memory capacity. *J Pers Soc Psychol*. 2003;85(3):440–452. doi:10.1037/0022-3514.85.3.440
11. Beilock SL, Rydell RJ, McConnell AR. Stereotype threat and working memory: mechanisms, alleviation, and spill over. *J Exp Psychol Gen*. 2007;136(2):256–276. doi:10.1037/0096-3445.136.2.256
12. Sitzman KL. Diversity and the NCLEX-RN: a double-loop approach. *J Transcult Nurs*. 2007;18(3):271–276. doi:10.1177/1043659607301302
13. Andriole DA, Jeffe DB. A national cohort study of U.S. medical school students who initially failed Step 1 of the United States Medical Licensing Examination. *Acad Med*. 2012;87(4):529–536. doi:10.1097/ACM.0b013e318248dd9c
14. Utzman RR, Riddle DL, Jewell DV. Use of demographic and quantitative admissions data to predict performance on the national physical therapy examination. *Phys Ther*. 2007;87(9):1181–1193. doi:10.2522/ptj.20060222
15. Cook C, Engelhard C, Landry MD, McCallum C. Modifiable variables in physical therapy education programs associated with first-time and three-year National Physical Therapy Examination pass rates in the United States. *J Educ Eval Health Prof*. 2015;12:44. doi:10.3352/jeehp.2015.12.44
16. Adams WM, Terranova AB, Belval LN. Addressing diversity, equity, and inclusion in athletic training: shifting the focus to athletic training education. *J Athl Train*. 2021;56(2):129–133. doi:10.4085/1062-6050-0558-20
17. Goudeau S, Sanrey C, Stanczak A, Manstead A, Darnon C. Why lockdown and distance learning during the COVID-19 pandemic are likely to increase the social class achievement gap. *Nat Hum Behav*. 2021;5(10):1273–1281. doi:10.1038/s41562-021-01212-7
18. Roa M, Shipman D, Hooten J, Carter M. The costs of NCLEX-RN failure. *Nurse Educ Today*. 2011;31(4):373–377. doi:10.1016/j.nedt.2010.07.009
19. Atemafac J. Consequences for nursing graduates of failing the National Council Licensure Examination (NCLEX). Published 2014. Accessed July 7, 2021. https://www.semanticscholar.org/paper/Consequences-for-Nursing-Graduates-of-Failing-the-Atemafac/717c655d3633697949b23b21e52fad7d93ac6f93
20. Williams DR, Priest N, Anderson NB. Understanding associations among race, socioeconomic status, and health: patterns and prospects. *Health Psychol*. 2016;35(4):407–411. doi:10.1037/hea0000242
21. McGuire TG, Miranda J. New evidence regarding racial and ethnic disparities in mental health: policy implications. *Health Aff (Millwood)*. 2008;27(2):393–403. doi:10.1377/hlthaff.27.2.393
22. Griffiths MJ, Papastrat K, Czekanski K, Hagen K. The lived experience of NCLEX failure. *J Nurs Educ*. 2004;43(7):322–325. doi:10.3928/01484834-20040701-04
23. BOC certification exam candidate handbook. Board of Certification. Published 2021. Accessed July 14, 2021. https://7f6907b2.flowpaper.com/202122BOCCertificationExamCandidateHandbook/
24. Sitzler B. NATA enters next phase of diversity, equity, inclusion and access plan. National Athletic Trainers' Association. Published 2021. Accessed July 23, 2021. https://www.nata.org/blog/beth-sitzler/nata-enters-next-phase-diversity-equity-inclusion-and-access-plan
25. CAATE pride statement. Commission on Accreditation of Athletic Training Education. Accessed July 23, 2021. https://caate.net/wp-content/uploads/2020/06/CAATE-Pride-Statement.pdf
26. CAATE anti-racism statement. Commission on Accreditation of Athletic Training Education. Accessed July 23, 2021. https://caate.net/wp-content/uploads/2020/06/CAATE-Anti-Racism-Statement-scaled.jpg
27. About us. Board of Certification. Accessed July 23, 2021. https://bocatc.org/about-us/what-is-an-athletic-trainer
28. Proposed accreditation standards diversity, equity, inclusion, and social justice. Commission on Accreditation of Athletic Training Education. Published January 2021. Accessed July 23, 2021. https://caate.net/wp-content/uploads/2021/01/CAATE-Proposed-Accreditation-Standards-DEI-SJ-DRAFT-1_4_21.pdf
29. Yeo HL, Dolan PT, Mao J, Sosa JA. Association of demographic and program factors with American Board of Surgery qualifying and certifying examinations pass rates. *JAMA Surg*. 2020;155(1):22–30. doi:10.1001/jamasurg.2019.4081
30. Implementation and guide to CAATE 2020 professional standards. Commission on Accreditation of Athletic Training Education. Published August 2021. Accessed November 10, 2021. https://caate.net/Portals/0/Documents/Standards%20and%20Procedures%20for%20Accreditation%20of%20Professional%20Programs.pdf
31. Institute of Medicine. *In the Nation's Compelling Interest: Ensuring Diversity in the Health-Care Workforce*. The National Academies Press; 2004. doi:10.17226/10885
32. White KA, Winkelmann ZK, Edler Nye JR, Eberman LE. Recruiting and retaining racially minoritized students into professional postbaccalaureate athletic training programs. *Athl Train Educ J*. 2021;16(2):120–131. doi:10.4085/1947-380X-20-29

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