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Student Debt Associated With Entry-Level Athletic Training Education

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Context: Borrowers burdened by high student debt generally experience financial constraints that can affect them both personally and professionally. To date, no published data exist that profile the education-related debt accrued by entry-level certified athletic trainers (ATs).

Objective: To assess the scope and scale of student debt associated with the completion of an entry-level athletic training degree.

Design: Cross-sectional study.

Setting: Online web-based survey.

Patients or Other Participants: Participants were recruited with assistance from the National Athletic Trainers' Association, who disseminated the survey to 18 689 certified ATs who were members in good standing and who had earned their certification between 2004 and 2022. A total of 2271 individuals accessed the survey.

Main Outcome Measure(s): The overall amount of student debt incurred to complete an entry-level degree in athletic training and the initial monthly repayment amount were collected from survey respondents. Education-related debt-to-income ratio (DTIR) and monthly payment DTIR, which are measures of financial health or stability, were also calculated from the acquired survey data.

Results: Among ATs who took out student loans, the average amount owed by entry-level ATs for the period spanning 2004–2022 was $61 717, with an average initial monthly loan payment amount reported to be $453. The mean education-related DTIR calculated from respondents was 169%, which exceeded the benchmark value of 100% recommended within the finance industry. Also, the average monthly payment DTIR calculated from study participants was 0.144, which approached the recommended acceptable upper limit of 0.15.

Conclusions: Education-related DTIR and monthly payment DTIR values reported by respondents suggest the potential for entry-level ATs to experience financial challenges related to their student debt.

Key Words: education-related debt, student loans, debt-to-income ratio

Key Points

- The average education-related debt-to-income ratio reported by entry-level athletic trainers is considered high by finance industry standards.
- High debt-to-income ratio and monthly payment debt-to-income ratio related to student debt portends the possibility of experiencing financial challenges postgraduation for entry-level athletic trainers.

With the cost of higher education rising, fewer students have the budgetary resources to pay for schooling without some form of financial aid.[1–7] This has resulted in an unprecedented increase in the amount of education-related debt students have acquired while matriculating through their programs of study.[1–7] Next to home mortgages, student loan debt now represents the second-highest consumer class of debt for Americans, ahead of auto loans, credit card debt, and home equity loans, respectively.[8] In fact, according to the Federal Reserve's most recent data, student loan borrowers in the United States currently owe a collective $1.737 trillion in federal and private student loan debt.[9] Interestingly, nearly half of all the outstanding student debt in the United States is held by about 25% of borrowers who completed a graduate or professional degree program.[10] The reason for this disparate finding is likely related, in part, to the limits placed on how much federal student loans one can borrow for undergraduate education compared with graduate or professional education.[11] Specifically, federal student loans for dependent undergraduate students are currently capped at a total of $31 000, whereas graduate or professional students can borrow up to $138 500. If that loan amount is insufficient to cover the total cost of attendance, graduate or professional students can apply for federal loans called PLUS loans to help cover the rest of their expenses.[11,12] That is to say that, effectively, no limit in terms of dollar amount to attend graduate school exists.[11,12] As a consequence, the College Board reported that those who graduated with student debt from an undergraduate degree program in 2021–2022 did so with an average of $29 400, whereas the most recent data (2019–2020) available from the National Center for Education Statistics indicate that the average student debt accrued after graduate-level education was $77 300.[13,14] The discrepancy in debt load associated with graduate versus undergraduate education is especially concerning for those wishing to enter a health care field, such as athletic training, physical therapy, or physician assistant, because the entry-level preparation for these health care professions occurs at the postbaccalaureate level (master's or doctoral level)

where graduate tuition rates are generally higher than undergraduate rates and where the number of credit hours required for degree completion may be greater than other non–health care graduate degrees, resulting in an overall higher cost. The elevated cost associated with graduate or professional education thus has the potential to create significant personal and professional challenges after graduation. Consider, for example, that the average debt related to obtaining a physical therapy degree was reported to be $116 183, with authors of 1 study indicating that 29% of physical therapy graduates were saddled with more student debt than could be supported by their entry-level salaries.[3,15]

Although the effect of student debt varies considerably among individuals and can depend on numerous factors, including the amount of personal debt they hold, their employment situation, and other personal circumstances, borrowers who are burdened by high student debt generally experience financial constraints that can affect both daily and major life decisions.[16–18] The need to allocate a significant portion of one's salary toward a monthly loan payment means that, typically, less disposable income is available to put toward such things as savings, investment in retirement, or for making nonessential or discretionary purchases.[16] Additionally, those who are financially limited because of their debt burden may have to delay major milestone events, such as getting married or having children.[16–18]

Elevated levels of student debt can also influence one's career choices and professional development, as graduates burdened with significant student loans may be compelled to reconsider their work setting and choose a job that pays more rather than one that aligns with their personal or professional interests and desires.[3] Also, constrained by their financial situation, those with limited disposable income may choose to forego pursuing advanced training and professional development that could negatively affect their career trajectory.[19] Lastly, graduates with substantial debt may be tempted to change jobs frequently (in constant search of a higher salary or perhaps a job offering some type of loan repayment benefit) or consider leaving the profession altogether.[20]

Over the past 20 years, 2 significant changes to entry-level education took place within the athletic training profession. These were the implementation of a policy change in 2004, as the National Athletic Trainers' Association (NATA) Board of Directors and the Board of Certification moved to create 1 route to certification through entry-level Commission on Accreditation of Allied Health Education Programs–accredited athletic training education programs, and in 2015, when the Athletic Training Strategic Alliance endorsed a decision to move from a baccalaureate degree to a master's degree program to enter the profession.[21,22] Naturally, by reshaping the degree pathway in athletic training, these changes, particularly the latter, had the potential to affect the overall cost of education and how students paid for their athletic training degree. To date, no published data exist that profile the student debt load of entry-level certified athletic trainers (ATs). Thus, the primary purpose of this study was to characterize the scope and scale of student debt accumulated by those completing an entry-level professional degree program in athletic training.

METHODS

Study Design and Survey Instrument

This study was a cross-sectional, online survey of ATs who were certified by the Board of Certification between 2004 and 2022. The reason for selecting this range of years was that it included the period when the aforementioned changes to athletic training education occurred.

To ascertain the scope and scale of student debt acquired by entry-level certified ATs, it was necessary to employ a questionnaire designed to acquire wide-ranging information related to education-related debt. The survey instrument used for this investigation was created by the authors and developed by adopting and adapting questions and concepts that were previously described by other health care fields, such as medicine, physical therapy, and nursing.[1–7] The total survey consisted of several types of questions and included multiple-choice, attitudinal, Likert-scale, and open-ended questions that were related to demographic information, education, salary, employment status, loan amount(s), and loan payments (refer to Supplemental Appendix for survey questions, available online at https://dx.doi.org/10.4085/1062-6050-0044.24.S1). The survey instrument and the study itself were approved by the institutional review boards at each of the author institutions.

Being that the specific objective of this investigation was to learn more about student debt incurred as a result of completing an entry-level athletic training degree, when respondents were asked to provide details related to debt amounts, those who completed their athletic training degree at the undergraduate level were asked to submit student loan data related to only their undergraduate degree, whereas those who completed their professional degree at the graduate level were asked to report student debt data associated with both their undergraduate and graduate studies. Reporting on education-related debt beyond that which was associated with the entry-level degree, such as additional degrees (ie, baccalaureate, masters, doctorate), continuing education programs, specialty certifications, and residencies, was beyond the scope of this investigation.

To determine face and content validity, the survey was sent to 10 content experts who were either established higher education faculty, academic student services staff, or individuals with experience with student financial aid. These experts provided feedback related to appropriateness, relevance, and delivery. To ascertain the face validity of the survey, the experts were asked to identify poorly written or vague items and any items that did not contribute to the overall goal of the survey instrument. In terms of content validity, a more structured and quantifiable process was undertaken. A commonly used method of quantifying content validity for multi-item surveys or questionnaires is the content validity index (CVI), which is a measure based on the ratings of relevance made by experts in the field.[23] By using the CVI, the relevance of each of the items that make up the scale or the overall survey can be assessed. To assess the validity of each of the survey items, experts were asked to rate the relevance of each survey item using a 4-point scale (1 = *not relevant*, 2 = *somewhat relevant*, 3 = *quite relevant*, and 4 = *highly relevant*).[23] The item-level CVI, also known as I-CVI, is an indicator of the proportion of experts who agree on the relevance of the item. It was calculated by computing the number of experts who, after reviewing the item, assigned that survey item a rating of either 3 or 4, and then dividing that number of experts by the total number of experts who provided an assessment.[23] Any item with an I-CVI score below 0.50 (indicating that <50% agreed with its relevance) would have been eliminated from the survey.[23] Scores between 0.50 and 0.78 were revised to improve relevance, and those survey items with a I-CVI greater than 0.78 were retained as is, unless

adjusted for clarity or legibility.[23] After expert review, of the 76 original survey questions, a total of 7 required revisions to enhance relevance, while all others were retained either as they were originally developed or after minor editorial enhancements. In addition to evaluating the relevance of individual items within the questionnaire, the relevance of the overall scale was also assessed. This was accomplished using the scale CVI (S-CVI) which can be computed in several different ways.[23] For this investigation, we determined S-CVI by calculating the average I-CVI across all survey items.[23] The computed S-CVI was 0.95, which is above the recommended level of 0.90.[23]

Participants

Participants were recruited with assistance from NATA, which disseminated the survey to members in good standing who had earned certification between 2004 and 2022. Before accessing the survey, all participants were required to acknowledge informed consent. Data collection occurred over a 10-week period (April 11, 2023, to June 22, 2023) with reminder emails sent at various intervals (ie, at 2, 4, 6, and 8 weeks postinitial distribution). In all, the survey instrument was sent to a sample of convenience that consisted of 18 689 certified ATs. A total of 2271 recipients accessed the survey, resulting in an overall response rate of 12.2%. Of all those that accessed the survey, 2081 completed the survey in its entirety (11.1% completion rate), while 190 surveys were submitted partially completed (1 or more questions left blank or unanswered). Despite being incomplete, data from these partially completed surveys were retained and included in statistical analyses. Because respondents had the choice to skip questions and submit incomplete surveys, the response rate for each of the individual survey questions varied.

Statistical Analysis

For the present study, a descriptive analysis of the debt burden of ATs was performed by gender, race or ethnicity, practice setting, educational institutional type (private or public; in-state or out-of-state), and the educational level at which the athletic training degree was obtained. In addition, by knowing the overall student loan balance, annual income, as well as monthly loan payment for most respondents, it was possible to calculate the individual debt-to-income ratio (DTIR) and monthly payment DTIR, both of which are measures of respondents' financial burden or, alternatively, their financial health or stability.[24–27] The DTIR was calculated by considering one's student loan balance as a percentage of their annual income, whereas monthly payment DTIR was calculated by taking the self-reported monthly student debt payment divided by one's gross monthly income. This means that only if a respondent supplied all the necessary information to input into the aforementioned formulas could the DTIR or monthly payment DTIR values be determined for each respondent.

Because the mean DTIR and monthly payment DTIR are measures that are calculated using income and loan data from the same year, they represent a snapshot of the financial well-being of ATs at the time they entered the workforce and allow for comparison between graduates from different years without having to consider the effect of year-on-year inflation, as would be the case if we attempted to compare mean debt amounts between different years. It is worth noting that experts have proposed economic benchmark values when it comes to student debt and recommend that student loan debt not exceed one's annual income (ie, DTIR = 100%), which is also known as the 1:1 debt to annual earnings rule of thumb, and that it is best to have a student loan monthly payment DTIR that is under 10% (ie, 0.10) of one's monthly income, with an acceptable upper limit of 15% (or 0.15).[23–26] As part of this investigation, we compared mean DTIR and mean monthly payment DTIR between genders and by the education level at which the athletic training degree was obtained. Comparisons were carried out using analyses of variance with the level of significance set a priori at $P = .05$. Post hoc analyses were completed using Tukey's HSD, if needed. All analyses were conducted using SPSS (version 28; IBM Corp) and R Statistical Software (version 4.3.2; R Core Team).

Table 1. Demographic Characteristics of Survey Respondents Who Reported Having Incurred Student Debt Related to the Entry-Level Athletic Training Degree

Characteristics	No.	Percentage of Study Sample	Percentage of 2024 NATA Membership
Gender			
Women	1378	68.8	55.7
Men	610	30.5	43.9
Nonbinary	5	0.2	0.06
Did not disclose	10	0.5	0.14
Race or ethnicity			
Asian	35	1.75	1.8
American Indian or Alaska Native	6	0.3	0.49
Black or African American	94	4.7	4.3
Latino, Hispanic, or Spanish origin	80	4.0	5.8
Native Hawaiian or Pacific Islander	3	0.15	0.15
White	1637	81.7	78.9
2 or more races or ethnicities	123	6.1	2.3
Did not disclose	25	1.25	3.7
Practice setting			
Academia	101	5.0	—
Collegiate	630	31.5	25.2
High school	641	32.0	23.7
Hospital setting	100	5.0	3.4
Industry	65	3.2	1.7
Military	32	1.6	1.2
Professional sports	56	2.8	3.6
Clinic or rehabilitation	46	2.3	0.58
Did not disclose	332	16.6	—
Entry-level athletic training degree			
Undergraduate	1428	71.3	—
Graduate	575	28.7	—

Abbreviation: NATA, National Athletic Trainers' Association.

RESULTS

Of all respondents (average age = 31.9 ± 5.4 years; median number of years as an AT = 8.0 years), 268 reported that they had no student debt, which represents 11.8% of our sample population. Of the 2003 participants who reported having student debt, 71.3% (n = 1428) indicated that they completed their entry-level athletic training degree at the undergraduate level, and 28.7% (n = 575) completed their entry-level degree at the graduate (master's) level. It should be pointed out that all debt-related data presented hereafter have been gleaned only from those respondents who reported having incurred student debt. Demographic data related to gender, race or ethnicity, employment status, and practice setting can be found in Table 1.

The overall mean education-related debt reported by respondents who took out student loans to help pay for their entry-level athletic training degree for the period spanning 2004–2022 was \$61 717 ± \$42 571 (n = 1887). When separated out by degree level, the average loan amount associated with obtaining an entry-level athletic training degree at the undergraduate level was \$52 064 ± \$36 020 (n = 1345; 71.3% of respondents who supplied student debt data), whereas those who acquired their athletic training degree at the master's level reported an average cumulative loan amount from completing both undergraduate (preprofessional) and graduate (professional) degrees of \$86 184 ± \$47 721 (n = 542; 28.7% of respondents who provided student debt information). If separated out, those completing their entry-level degree at the master's level reported an average debt load of \$33 445 ± \$32 996 related to just their undergraduate preprofessional degree and an average of \$52 739 ± \$33 112 in student debt from completing the athletic training entry-level master's degree.

Other debt figures arranged by gender, race or ethnicity, practice setting, and type of educational institution are provided in Table 2. Table 3 provides the average student loan amount by degree level and year of graduation and clusters data into periods of 5-year intervals (when possible) to allow for a more robust analysis of longitudinal trends of the data.

The average initial monthly loan payment amount reported by our sample population of ATs with student debt was \$453 (n = 1631). When separated out by degree level, those with an undergraduate entry-level degree reported an average starting loan payment amount of \$429 ± \$338 (n = 1165; 71.4% of respondents who provided monthly loan payment details), whereas those with a graduate entry-level degree reported an initial payment amount of \$511 ± \$418 (n = 466; 28.6% of respondents who provided monthly loan payment information). For more details, Table 4 indicates the average student loan payment amount by year of graduation.

For the period between 2004 and 2022, the average entry-level salary was reported to be \$39 382 (n = 1424). Study respondents also indicated that their current (2023) average salary was \$59 114 (n = 1617). Additional information related to self-reported entry-level salary can be found in Table 4.

The overall average DTIR identified in our study sample was 169% (n = 1380). If DTIR was calculated according to the level at which the athletic training degree was attained, the DTIR was 146% for those who obtained their athletic training degree at the undergraduate level (n = 977; 70.8% of respondents who provided both their student loan balance and annual income) and 225% for those who obtained their degree at a graduate level (n = 403; 29.2% of respondents who provided both their student loan balance and annual income), a statistically significant finding ($F_{1,1378} = 97.597$, $P < .001$). When compared by gender, no statistical differences were observed between the calculated DTIR figures ($F4_{,1375} = 0.202$, $P = .938$).

The entry-level monthly payment DTIR calculated from all study respondents with student debt was 0.144 (n = 1200). A comparison of monthly payment DTIR between those who completed their degree at the undergraduate level (monthly DTIR = 0.139; n = 862, or 71.8% of those who provided both annual income and monthly payment information) and those who completed their degree at the graduate level (monthly DTIR = 0.157; n = 338, or 28.2% of those who provided both annual income and monthly payment information) revealed a statistically significant difference ($F_{1,1198} = 4.975$, $P = .026$). However, when monthly payment DTIR was compared by gender, no statistically significant differences were identified ($F_{4,1195} = 0.716$, $P = .581$). Table 4 displays the entry-level monthly payment DTIR by year of graduation, and Table 5 reveals how the debt burden of our study participants compares with previously described economic benchmark values which are used to classify acceptable versus unacceptable levels of student debt.

Table 2. General Findings Related to Student Debt in Athletic Training[a]

Category	No.	Average Debt	SD
Gender			
Women	1293	\$61 719	\$43 225
Men	579	\$61 701	\$41 289
Nonbinary	5	\$50 600	\$30 770
Race or ethnicity			
Asian	34	\$77 353	\$50 657
American Indian or Alaska Native	6	\$47 250	\$35 651
Black or African American	87	\$76 171	\$57 558
Latino, Hispanic, Spanish origin	76	\$54 565	\$33 511
Native Hawaiian or Pacific Islander	3	\$24 667	\$7638
White	1539	\$60 900	\$41 118
Multiracial (identifies with more than 1 race)	117	\$64 227	\$50 135
Practice setting			
Academia	94	\$58 228	\$42 585
Collegiate	601	\$60 134	\$39 902
High school	604	\$63 130	\$42 807
Hospital setting	92	\$58 080	\$35 435
Industry	63	\$62 944	\$38 440
Military	28	\$84 554	\$58 183
Professional sports	53	\$71 930	\$56 649
Clinic or rehabilitation	43	\$63 791	\$36 161
Institution type—undergraduate entry-level[b]			
Public, in-state	627	\$44 481	\$31 468
Public, out-of-state	178	\$58 098	\$40 306
All public (in-state and out-of-state)	805	\$47 492	\$34 068
Private, in-state	326	\$59 242	\$36 429
Private, out-of-state	199	\$57 568	\$40 295
All private (in-state and out-of-state)	525	\$58 608	\$37 911
Institution type—graduate entry-level[c]			
Public, in-state	148	\$38 880	\$21 514
Public, out-of-state	151	\$58 162	\$35 065
All public (in-state and out-of-state)	299	\$48 618	\$30 667
Private, in-state	132	\$55 463	\$28 129
Private, out-of-state	92	\$70 663	\$36 904
All private (in-state and out-of-state)	224	\$61 706	\$32 814
Entry-level athletic training degree			
Undergraduate	1345	\$52 064	\$36 020
Graduate[d]	542	\$86 184[d]	\$47 721
Overall	1887	\$61 717	\$42 571

[a] Based on data from respondents who reported having student debt.
[b] Data reflect loans acquired from completing an undergraduate entry-level athletic training degree.
[c] Data reflect loans acquired solely from completing an entry-level graduate athletic training degree (ie, do not include education-related debt that may have been acquired to complete an undergraduate degree).
[d] Average cumulative debt amount (includes debt acquired from completing both a preprofessional undergraduate degree and the graduate entry-level athletic training degree).

DISCUSSION

The rapid escalation in the accumulation of student debt among those seeking professional degrees has created widespread

Table 3. Average Student Debt Incurred by Those Who Completed Their Entry-Level Athletic Training Degree at the Undergraduate and Graduate Levels Between the Years 2004 and 2022[a]

	Undergraduate		Graduate			
Year of Graduation	No.	Average Debt Accumulated for Undergraduate Athletic Training Degree	No.	Average Debt Accumulated for Undergraduate Preprofessional Degree	Average Debt Accumulated for Graduate Athletic Training Degree	Average Cumulative Debt at Graduation
2004	28	$45 857	3	$3333	$39 667	$43 000
2005	40	$39 059	2	NA	$43 000	$43 000
2006	28	$44 929	5	$20 444	$25 156	$45 600
2007	52	$55 173	3	$37 333	$30 333	$67 666
2008	35	$48 286	13	$23 308	$52 846	$76 154
(2004–2008)	(183)	($47 341)	(26)	($20 278)	($42 645)	($62 923)
2009	45	$57 156	6	$23 500	$54 333	$77 833
2010	50	$49 147	14	$17 857	$46 571	$64 428
2011	60	$56 892	11	$27 727	$48 909	$76 636
2012	61	$56 885	18	$29 278	$52 278	$81 556
2013	80	$54 024	20	$31 000	$67 550	$98 550
(2009–2013)	(296)	($54 847)	(69)	($26 710)	($55 188)	($81 898)
2014	70	$53 621	16	$49 813	$58 188	$108 001
2015	78	$47 950	32	$35 406	$51 031	$86 437
2016	66	$54 500	29	$32 759	$70 276	$103 035
2017	71	$58 844	27	$37 444	$60 444	$97 888
2018	80	$44 241	43	$27 384	$63 290	$90 674
(2014–2018)	(365)	($51 528)	(147)	($34 480)	($60 921)	($95 401)
2019	68	$51 906	56	$35 818	$53 557	$89 375
2020	36	$43 361	61	$35 643	$53 084	$88 727
2021	38	$50 487	75	$36 778	$47 457	$84 235
2022	8	$33 625	58	$34 017	$42 207	$76 224
(2019–2022)	(150)	($48 521)	(250)	($35 646)	($48 978)	($84 624)

Abbreviation: NA, not available.
[a] Based on data from respondents who reported having student debt.

challenges that have been well documented by many of the health care disciplines or professions.[1–7] Until the present study, not much was known about the scope and scale of student debt among entry-level ATs aside from what individual academic athletic training programs may have ascertained by querying graduating students or recent alumni. Thus, to our knowledge, we are the first to present a description of the general debt profile of entry-level ATs over the past nearly

Table 4. Average Self-Reported Entry-Level Salary, Initial Loan Payment, and the Calculated Monthly Payment DTIR of Those Who Completed Their Athletic Training Degree at the Undergraduate and Graduate Levels Between 2004 and 2022[a]

	Undergraduate			Graduate		
Year of Graduation	Average Entry-level Salary (No.)	Average Initial Monthly Loan Payment Amount (No.)	Average Initial Monthly Payment DTIR (No.)	Average Entry-level Salary (No.)	Average Initial Monthly Loan Payment (No.)	Average Initial Monthly Payment DTIR (No.)
2004	$30 765 (17)	$327 (27)	0.128 (16)	$31 500 (2)	$400 (3)	0.133 (2)
2005	$33 542 (33)	$301 (36)	0.102 (30)	$29 250 (2)	$100 (1)	0.039 (1)
2006	$31 420 (25)	$334 (27)	0.157 (24)	$34 000 (4)	$366 (5)	0.111 (4)
2007	$34 900 (40)	$463 (48)	0.141 (34)	$33 667 (3)	$350 (3)	0.128 (2)
2008	$38 677 (31)	$397 (31)	0.117 (26)	$34 182 (11)	$455 (11)	0.184 (8)
2009	$35 855 (38)	$497 (43)	0.163 (35)	$26 544 (4)	$546 (6)	0.258 (4)
2010	$34 892 (37)	$429 (51)	0.152 (35)	$36 864 (11)	$635 (12)	0.233 (10)
2011	$41 408 (49)	$445 (60)	0.141 (47)	$40 444 (9)	$477 (11)	0.161 (8)
2012	$36 151 (43)	$431 (58)	0.155 (41)	$37 385 (13)	$548 (16)	0.139 (11)
2013	$39 347 (59)	$348 (74)	0.113 (52)	$35 692 (13)	$511 (19)	0.181 (13)
2014	$37 327 (52)	$515 (62)	0.165 (43)	$37 850 (16)	$651 (13)	0.290 (13)
2015	$40 575 (59)	$372 (73)	0.113 (53)	$36 810 (21)	$421 (31)	0.144 (21)
2016	$48 337 (49)	$426 (61)	0.139 (42)	$38 976 (21)	$463 (26)	0.117 (17)
2017	$39 328 (56)	$448 (56)	0.153 (45)	$41 553 (19)	$556 (27)	0.177 (17)
2018	$42 200 (60)	$413 (70)	0.115 (52)	$41 939 (33)	$382 (37)	0.111 (28)
2019	$42 770 (53)	$412 (54)	0.125 (41)	$43 081 (43)	$387 (44)	0.122 (33)
2020	$40 481 (26)	$364 (21)	0.123 (16)	$45 536 (42)	$594 (50)	0.152 (32)
2021	$42 714 (21)	$509 (17)	0.146 (11)	$43 438 (56)	$596 (61)	0.145 (47)
2022	$50 000 (3)	$450 (4)	0.117 (3)	$41 880 (49)	$588 (47)	0.191 (36)

Abbreviation: DTIR, debt-to-income ratio.
[a] Based on data from respondents who reported having student debt.

Table 5. Distribution of Study Respondents Who Met or Exceeded Various Economic Benchmark Values Related to Financial Health[a]

Category	No.	Percentage of Study Sample Who Provided Debt Information[b]
DTIR > 100% (ie, exceeds 1:1 debt to annual earnings rule of thumb)	893	64.7
Monthly Payment DTIR < 0.10[c]	532	44.3
Monthly Payment DTIR > 0.15[d]	382	31.8
Monthly Payment DTIR > 0.20	245	20.4
Monthly Payment DTIR > 0.30	106	8.8

Abbreviation: DTIR, debt-to-income ratio.

[a] Based on data from respondents who reported having student debt.

[b] Because some respondents may have been included in multiple calculations within this column, the percentages will not sum to 100%.

[c] It is recommended that student loan monthly payment DTIR be under 10% (or 0.10).

[d] It is recommended that student loan monthly payment DTIR not exceed an upper limit of 15% (or 0.15).

20 years. That is, by conducting a nationwide survey of ATs who graduated from as far back as 2004, we were able to gather specific and comprehensive data that have allowed us to provide a detailed description of the current landscape of student debt among entry-level ATs.

Although it is not entirely known what percentage of athletic training graduates incurred education-related debt while obtaining their athletic training degree, data from the 2271 certified ATs who responded to our survey request indicate that more than 88% graduated with some amount of debt as a result of obtaining their AT degree. This is similar to data reported by physical therapists and physician assistants, who reported that 89% and 84% of graduates, respectively, incurred student debt, but greater than what was reported by nurses, who indicated that between 69% and 76% of students took out loans to obtain their nursing credential.[1,3,7]

In the most recent report published by the College Board, 51% of bachelor's degree recipients in 2021–2022 (all college majors) from public and private nonprofit 4-year institutions graduated with debt that averaged $29 400 per person.[13] This amount is markedly less than data disclosed by our survey respondents who graduated in 2021 from a baccalaureate degree program and reported an average student debt of $50 487 (see Table 3). A similar discrepancy is observed even if we only compare athletic training student debt to the debt incurred by other health care professionals whose degree is also obtained at an undergraduate level. For example, when we examine the most recently available data from the nursing profession, the mean debt acquired by nurses who completed a Bachelor of Science in Nursing between 2017 and 2019 was reported to be $23 711 as compared with the mean athletic training student debt in 2019, which was calculated to be $51 906.[28] However, without knowing the extent to which various causal factors associated with the cost of attendance have contributed to this differential in debt burden, such as the number of credit hours required for the degree, the ratio of students attending a private versus public institution, or even the ratio of students attending in-state versus out-of-state schools, it is difficult to fully ascertain why such a notable discrepancy in student debt exists between athletic training and nursing graduates.

Our data, as noted in Table 2, revealed that attending a private institution to complete an athletic training degree adds considerably to the overall debt incurred by students. In our sample of ATs with student debt, 39.5% obtained their undergraduate-level professional degree from a private school. According to our findings, attending a private school for an undergraduate athletic training degree (whether in-state or out-of-state) appears to have added, on average, slightly more than $11 000 to one's overall student debt load than completing the degree at a public institution. This is more than what was detailed in the 2023 report from the College Board, which revealed that attending a 4-year private nonprofit institution for an undergraduate degree added an average of just over $6000 to a graduate's overall cumulative debt load as compared with attending a public 4-year school.[13] Moreover, our results showed that the benefit of attending a public institution as a means to keeping debt accumulation down is diminished considerably if the public school is out of state.

Our data also confirmed that racial disparities in student debt accumulation exist within the profession of athletic training just as in other health care professions such as physical therapy, in which ethnic and racial minorities are burdened more by student debt and thus shouldering more of the consequences associated with this type of debt.[3] More specifically, our data indicated that Asians ($77 353), followed closely by Blacks or African Americans ($76 171), reported having the highest amount of student debt. Whites ($60 900) then had the next highest level of debt, followed by Latino, Hispanic, or those of Spanish origin ($54 565). Interestingly, although the ratio of racial and ethnic minorities in our study sample were underrepresented in comparison with current United States Census data, the ethnicity or racial student debt data we have described here still appear to follow a national pattern chronicled by the Board of Governors of the Federal Reserve System, who published a report based on borrowers who took out the largest amount of federal student loan money in 2022.[29,30] In their report, they compared Black, White, and Latinx borrowers to a large group labeled "Other," which included Asian, American Indian, Alaska Native, Native Hawaiian, Pacific Islander, and those who identify as multiracial.[30] They found that Black borrowers took out the largest amount of federal student loan money in 2022, followed by the Other group, then Whites, and finally Latinx borrowers, who on average took out the smallest amount in loans.[30] Indeed, had we created similar racial or ethnic groupings as those formed by the Federal Reserve, we would have observed very similar findings. Unfortunately, this disparity in how student debt is distributed across racial or ethnic groups has the potential to affect diversity within our profession because high student debt can serve as a barrier to minorities entering our profession and possibly staying there, as has been reported by other professions.[3,31]

For many of the health care professions, acquiring a professional degree requires that a student first complete a preprofessional (ie, undergraduate) degree before he or she can matriculate through the graduate-level professional program.[2–4,6,7] This means that to practice in those professions (which now includes athletic training), an individual may incur education-related debt from the completion of both undergraduate and professional or graduate degrees, and so the cumulative debt that would be acquired from completing both degrees would predictably be higher than if the professional degree was obtained at the baccalaureate level. Indeed, the cumulative education-related debt load incurred by ATs who obtained

their professional degree at the graduate level was higher for all but 1 of the years examined in our study as compared with those who obtained their professional degree at the undergraduate level (Table 3).

While some may argue that reporting cumulative debt data (combined undergraduate and graduate student debt) may unduly magnify student debt associated with degrees pursued at the graduate level (eg, athletic training, physical therapy, physician assistant), the reporting of cumulative debt incurred from both preprofessional (ie, undergraduate) and professional degrees more accurately reflects the actual level of debt that may be acquired to practice at an entry-level position within that specific profession. Moreover, it is common practice by the US Department of Education and for some professions to represent student debt data as a single cumulative debt amount.[6,7,14] For example, the most recent data offered by the US Department of Education in 2019–2020 indicated that the average cumulative student debt for all types of master's degree students (total loans for undergraduate and graduate education) was $69 140.[14] This value was noticeably lower than the cumulative (undergraduate and graduate) debt data we identified for athletic training graduates in 2019 ($89 375) and 2020 ($88 726). If, however, we compared the student debt incurred by graduates from an athletic training entry-level master's degree with those from other health care professions that also required matriculation through graduate degree programs of similar length, such as physician assistants, we would find different results. Whereas obtaining an athletic training degree in 2021 at the graduate level resulted in an average overall loan obligation of $84 235, the overall amount of educational debt accrued by physician assistants for the same year was reported to be just over $156 000 (combined mean debt from preprofessional and professional degrees).[7] While these direct comparisons of student debt levels between ATs and graduates from other professions may be helpful to assess the scale of student debt burden among the athletic training community as compared with other professions, they are not as useful in helping to determine the scope of the financial challenge or hardship faced by entry-level ATs who might be saddled with seemingly high levels of student debt.

Since salary serves as a cornerstone of financial health, influencing various aspects of an individual's financial well-being, including the ability to meet financial obligations and achieve long-term financial goals such as loan repayment, it certainly must be considered when attempting to determine the economic burden associated with student loan debt. For instance, because the salary that each profession can demand varies considerably, student debt accrued by a person in a profession that generally offers lower salary levels may be a greater financial burden than a similar debt load held by an individual in a different profession offering higher salaries. Thus, to better assess how much student debt an individual can afford, the DTIR and monthly payment DTIR are more useful methods of assessing the financial burden that is experienced as a result of the student debt one carries.[24–27] Again, the DTIR considers one's student loan balance as a percentage of annual income, whereas the monthly DTIR calculates the percentage of one's gross monthly income that goes toward paying the current monthly student debt payment. Our data revealed that the mean DTIR for the entire study sample was 169%, which is clearly higher than the recommended benchmark value of 100% and may portend some degree of financial challenges.[25,26] In comparison with other health care professionals, this number is greater than the ratio reported in 2016 for dentists (164%), pharmacists (141%), optometrists (150%), and physicians (90%) but less than that reported for veterinarians (188%) and physical therapists (197% reported in 2020).[24,32] Moreover, we found that, upon entering the profession, those who obtain their athletic training degree at the master's level are likely to experience potentially even higher levels of financial hardship than those with an undergraduate athletic training degree, given their reported higher DTIR values (ie, DTIR = 225%).

The DTIR values that we calculated from our survey data are of some concern, given their magnitude; however, these values do not consider any modifications to payments that individuals may have requested or obtained through loan servicers, such as debt restructuring or enrolling in an income-drive repayment plan to reduce monthly payment amounts and extend repayment timelines. For this reason, the monthly payment DTIR might offer greater insight into the potential financial hardships that entry-level ATs might experience because of their debt load. Our data indicated that, over the past nearly 20 years, the monthly payment DTIR of entry-level ATs averaged 0.144 (0.139 for those who obtained their degree at the undergraduate level versus 0.157 for those who obtained their degree at the graduate level). This value is higher than that identified for most other health care professions (physician assistant = 0.116, dentists = 0.115, pharmacists = 0.109, physicians = 0.075, and nurses = 0.071) with the exception of physical therapists, who have reported monthly DTIR values ranging between 0.10 and 0.22.[24,33] Although the average monthly payment DTIR for entry-level ATs hovers near the upper limit of what is considered an acceptable level of student debt, what is even more concerning is that, of all the survey respondents who provided both entry-level salary and initial loan payment amounts within the survey, nearly one-fifth of them had amassed a monthly DTIR of 0.2 or greater. Allocating 20% or more of monthly earnings to pay down student loan debt has been linked to increased financial hardship, which could lead to increased default rates and other financial consequences.[27,34] It is important to mention that our data were captured before the implementation of various student debt relief proposals put forth by the Biden administration that include different student loan forgiveness options and repayment plans. Given the DTIR and monthly payment DTIR values reported above, a fair number of our survey respondents would likely qualify for some form of debt relief if they were to avail themselves of those programs.

Lastly, as part of our investigation, we requested that respondents share with us their current 2023 salary. The average salary disclosed by our study sample, who reported a median of 8 years of experience as ATs, was $59 114, which is in line with data reported in the recently published NATA 2023 salary survey that revealed that those with 5 to 10 years of experience had an average salary of $59 233.[35] We believe that this finding aids in not only demonstrating the validity of the data we collected via the survey but also in corroborating our belief that we have provided a reasonably accurate view of the current landscape of student debt among entry-level ATs.

Limitations and Future Research

Several limitations must be considered with survey research. One of the primary concerns is that self-reported data cannot be independently verified for accuracy and truthfulness. While

the instrument tool was validated before implementation, it is uncertain if all survey respondents clearly understood what was being asked of them or if they responded accordingly. Also, although survey instruments are useful tools for gathering data, they are subject to selection bias, as respondents may have self-selected to participate because of personal interest or availability.[24] For example, it is possible that those with the highest levels of debt may have been motivated to participate in a survey about student debt at disproportionate levels compared with those with lower levels of debt or no debt at all.[23] Such a discrepancy could have affected data validity. Also, as the survey was distributed by the NATA, only active members in good standing were eligible to receive the invitation to complete the survey and thus participate in the study.

Our survey included ATs who were certified during the past nearly 20 years (2004–2022). During this period, an individual could have become a certified AT by matriculating through either a bachelor's or a master's degree professional program. However, for most of the years in question, only a small number of graduate entry-level programs existed; in 2015, when the profession decided to change the educational requirements to a professional master's degree to align with other health care professions, the number of graduate entry-level programs increased significantly. In 2015, 333 programs awarded professional degrees at the undergraduate level and 27 at the graduate level.[36] Currently, 10 remaining undergraduate programs and 245 master's programs confer athletic training degrees.[37] Given the relatively recent degree change and prolonged transition grace period, it is not surprising that most respondents (71.3%) reported graduating from a bachelor's degree program and less than a third reported graduating from an entry-level master's degree program (28.7%). Because of this discrepancy in response rate, graduate-level data were garnered from considerably smaller sample sizes and were obviously less representative of the entire sample population, particularly when data were split up by year of graduation.

Postprofessional education beyond that which is required for the entry-level professional degree, such as other baccalaureate degrees, master's degrees, doctorates, specialty certifications, or residencies, may be sought for various reasons such as for personal growth, for employment enhancement, or because of employer requirements. These may or may not involve an out-of-pocket cost, and the mechanisms that may be used to help offset the cost associated with this additional education can vary and be complicated (student loans versus graduate assistantships versus employer subsidies, combinations of these methods, etc). Nevertheless, for those individuals who must pay for these educational expenses on their own, it represents the need for more student loans that could further affect the financial well-being of ATs. Although no other health care professions have attempted to report on total overall student debt that includes preprofessional, professional, and postprofessional debts, this should be considered with future studies to better ascertain the effect of student debt among a larger swathe of ATs and not just entry-level ATs.

Athletic trainers who are starting their careers and thus lack professional experience are likely to earn less upon entering professional practice than those who have been practicing for even a few years.[35] The most recent NATA salary survey revealed those with less than 1 year of experience reported an average salary of $48 931, whereas those with 1 to 5 years of experience reported an average salary of $53 969, a greater than 10% increase.[35] Consequently, the lower compensation that is often associated with entry-level positions could lead to inflated DTIR values. Thus, it is possible that the DTIR values we reported may not be wholly representative of the financial health of young professionals within our profession, particularly after they have been practicing for a few years postgraduation.

As a final point, it must be remembered that, with the onset of the COVID pandemic, the US Department of Education issued a payment pause known as an administrative forbearance. In addition to pausing loan payments from March 2020 until September 2023, the interest rate was set to 0%. Thus, it is possible that the payment data reported by some survey participants may not have been up to date or entirely accurate, which would have, in turn, affected the aggregate data that we have reported.

To better understand and possibly mitigate the effects of student debt on ATs and the profession as a whole, more research on this topic is needed. Most importantly, future researchers will need to determine the personal and professional effect of high student debt burden on ATs. As a final point, in light of the potential effects that both the entry-level degree change in athletic training and the COVID pandemic may have had on the reliability of the data that were collected as part of this study, it would be prudent to repeat the current study before long to denote any notable changes to the scope and scale of the student debt issue in athletic training.

CONCLUSIONS

This study adds to the growing body of literature of health professions characterizing the debt profile of its members, and we believe that the data that have been reported adequately underscore the scope and scale of student debt burden among members of the athletic training profession. It is clear, even from these initial data points, that although the debt load incurred by entry-level ATs is not as high as those from other health care professions, given the high DTIR we have reported, it is possible that a significant fraction of our athletic training colleagues is either currently experiencing or has previously experienced financial challenges related to their student debt burden. It appears that those entry-level ATs who completed their degree at the graduate level are likely experiencing more financial hardships than those who obtained their degree at the undergraduate level. Lastly, our data indicate that student loan debt among ATs disproportionately affects certain racial and ethnic minorities, specifically Asians and Blacks or African Americans.

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SUPPLEMENTAL MATERIAL

Supplemental Appendix. Survey questionnaire.

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