

Factors that Influence the Academic Success of College Athletes Participating in the National Association of Intercollegiate Athletics

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The purpose of this research is to conduct an exploratory study examining factors that influence the academic success of college athletes participating in the National Association of Intercollegiate Athletics (NAIA), a subject that has not been empirically studied. For this study, academic success defined as retention and graduation, represents the dependent variables of interest. Additionally, this study examines actors influencing academic success including institutional financial aid, background characteristics (race, gender), college experience (GPA, residential housing), athletic characteristics (sport, athletic expenses), organizational structure, and participation as a varsity or non-varsity athlete. This study uses institutional data from 2019-2020 NAIA's Return on Athletics (ROA) initiative, and data from the Integrated Postsecondary Education Data System (IPEDS). Logistic regression is used to answer two research questions exploring the factors that influence NAIA college athlete success. Findings indicate athletes are retained at a high rate in comparison to available NAIA data, but certain sub-groups may be at risk for attrition. Specifically, non-varsity athletes, athletes with a grade point average below 3.0, or those who have been enrolled less than two years.

Introduction

Higher education institutions compete for decreasing pools of incoming students to meet enrollment targets. According to Hussar et al. 2020, between 2010-2018, full-time undergraduate enrollments at four-year institutions decreased by 8%. Many four-year universities are dependent on enrollment and the tuition generated to maintain institutional viability (Anderson, 2019). Institutional success is often defined by retention and graduation rates (Kuh et al., 2006). Several factors influence retention and degree completion, including engagement, specifically enrollment in-



tensity or using early data on persistence (Kamer & Ishitani, 2021), and access to financial assistance (Millea et al., 2018).

College athletic programs are utilized to attract students to campus and have them engage in the campus environment. For many small colleges, like the National Association of Intercollegiate Athletics (NAIA), varsity athletics can serve as a primary driver of enrollment (Denhart et al., 2010). However, given the current environment of fiscal strain, many campus stakeholders question the role of intercollegiate athletics, the excessive spending to maintain athletic programs, and the overall influence on enrollment (Denhart et al., 2010; Zvosec & Baer, 2022). Spending on athletics is often controversial, as universities grapple with budget shortfalls from the COVID-19 pandemic and lower enrollment numbers, leading some institutions to close entire athletic programs (e.g., Swanson & Smith, 2020). Arguments concerning college athletics and its place in higher education are the ever-rising costs associated with the chase for winning and championships, coupled with issues of academic misconduct (Gayles et al., 2018). As athletic expenses increase, so do calls for accountability from institutional stakeholders (Denhart et al., 2010; Ridpath, 2008).

While a large body of research exists concerning athlete experience and the role of athletics in revenue-generating National Collegiate Athletic Association (NCAA) Division I programs (i.e., Brewer & Petitpas, 2017; Johnson et al., 2013), less is known about the influence of athletic participation on success outcomes at four-year institutions within the NAIA. The NAIA governs athletic programs at 250-member institutions across 21 regional conferences and awards approximately \$800 million in athletic scholarships to 77,000 athletes (NAIA, n.d.d). Recently, the NAIA undertook an initiative titled, Return on Athletics (ROA), to assist member institutions with aligning collegiate athletics with institutional priorities (NAIA, n.d.d). Specifically, the three priorities of the ROA initiative are providing information on managing enrollment, promoting academic success, and supporting financial stability through intercollegiate athletics.

According to the 2022-2023 NAIA Official and Policy Handbook, its purpose is to “promote the education and development of students through intercollegiate athletic participation” (p. 5). NAIA institutions report an average undergraduate enrollment of approximately 1,250 students. Institutions in the NAIA spend 40% less than their NCAA counterparts in all NCAA divisions on athletics and average a net return of \$10,100 per athlete based on enrollment projections (NAIA, 2022). Additionally, the NAIA has experienced a 24% increase in athlete participation rates over the last five years association-wide (NAIA, 2022). While these data seemingly support the ROA goals of financial stability and increasing enrollment via athletics, NAIA athletic academic success is less clear. As member institutions continue to invest scarce resources into athletic programs to achieve enrollment targets and improve institutional viability, ensuring the academic success of the athletes is imperative. Utilizing Return on Athletics data this study aims to examine variables contributing to the academic success of athletes participating in the NAIA to detect potential trends, identify areas of effectiveness, and discover opportunities for improvement in athlete success.

The purpose of this exploratory study is to analyze factors that influence athlete markers of success, specifically retention, and graduation. In addition, this study addresses voids in the literature regarding NAIA athletes along with assessing methods for validity in future research. This information can inform institutional decision-making, improve institutional practices, and enhance understanding of how NAIA athletes can be better served by institutions to increase academic success. By gaining a better understanding of the effects of student characteristics, financial factors, and athletic participation on retention and graduation utilizing the NAIA's Return on Athletics initiative, along with additional research, member institutions can gain a holistic understanding of how intercollegiate athletics can promote improved outcomes for both the athlete and the institution. The specialized nature of the Return on Athletics data set provides for a detailed analysis specific to NAIA athletes that is currently missing in higher education literature.

Literature Review

Chen's Conceptual Model

This study relies on Chen's (2008) framework to guide the variable selection. Chen's framework was developed to provide a more inclusive model for assessing the relationship between financial aid and dropout risk among student sub-group populations, including across socioeconomic status and racial/ethnic groups. Chen developed the framework after an extensive literature review gleaned from financial aid research across five theories used for studying student departure including psychological, sociological, organizational, interactionalist, and economics. The model highlights the interaction between student background characteristics and financial aid. The framework identifies "eight clusters of variables known to affect dropout rates including background characteristics, educational aspirations, pre-college preparation, college experience, organizational effects, financial factors, time, and interaction effects" (Chen, 2008, p. 224). The independent variables include background characteristics such as gender, age, race/ethnicity, family income, and parental education (Chen, 2012). Chen defined education aspiration as the expected degree attainment of students. Pre-college preparation is described as high school GPA, ACT or SAT scores are also incorporated (Chen, 2012). The fourth variable, college experience, including both academic and social integration (Chen, 2008, 2012). The fifth variable focuses on organizational characteristics, such as institutional size and control (Chen, 2012). Financial factors like institutional price and financial aid are included in the sixth variable (Chen, 2008, 2012). The final two variables include time in college described as academic years enrolled, time to degree completion, and interaction effects like financial aid across student background characteristics.

Factors Influencing Retention and Graduation

Previous literature points to the complex nature of retaining students and examines multiple variables that work to influence retention or drop-out decisions among college students (Chen, 2008, 2012; Kuh et al., 2006; Millea et al., 2018) and college

athletes (Horton, 2015; Melendez, 2006; Mendez et al., 2009). The main factors used in this study influencing retention and graduation of NAIA athletes (See Figure 1) are: (a) student background characteristics, (b) pre-college preparation, (c) college experience, (d) organizational factors, (e) financial aid type, and (f) time in college.

Student Background Characteristics

Female college athletes often experience higher retention (Cocco et al., 2023a, 2023b; LeCrom et al., 2009) and graduation rates (Staurowsky et al., 2020). In addition to gender, race, and ethnicity are important variables to consider when examining academic outcomes due to student disparities that exist across racial and ethnic groups (Hussar et al., 2020). Examination of the relationship between race and intercollegiate sport, noted low GPA, persistence, and graduation rates among Black male college athletes particularly in revenue-generating sports in NCAA Division I (Baker & Hawkins, 2016; Comeaux & Harrison, 2007; Harper, 2016; Johnson et al., 2013). Lastly, first-generation college students are found to have lower retention and graduation rates (Pratt et al., 2019), engage less with the campus environment, are found to be less likely to participate in extracurricular activities and athletics, are less likely to live on campus, and are more likely to be employed (Pascarella et al., 2004). According to Cocco et al. (2023c) within the NAIA, football (19%), baseball (15%), and men's soccer (10%) had the greatest percentage of first-generation athletes, and first-generation athletes were retained at a rate of 63%, slightly higher than the total athlete population (62%).

Pre-College Preparation

Pre-college preparation criteria including GPA and ACT/SAT scores are benchmarks for assessing college readiness (Reason, 2003). High school GPA is considered a better predictor of academic performance and retention in the first year of college (Cabrera et al., 2013) in comparison to standardized tests (St. John et al., 2001). Furthermore, gaps exist in all pre-college preparation indicators for low-income, minority, and first-generation students (DeAngelo & Frank, 2016; St. John et al., 2001). In addition to predicting college readiness, pre-college preparation determines initial eligibility for intercollegiate athletics participation. The minimum eligibility requirements for prospective athletes are intended to ensure that upon entering higher education and intercollegiate athletics, athletes can manage the demands of college-level coursework and a rigorous athletic schedule. Similar to the non-athlete population, lower academic preparation is often cited as a contributor to lower retention and graduation rates among sub-groups of athletes (Horton, 2015; Kulics et al., 2015; Melendez, 2006). Furthermore, the NAIA incentivizes coaches and athletic departments to recruit academically high-performing athletes through the academic exemption rules, based on GPA, ACT/SAT scores, and/or class rank. For athletes who meet the requirements for academic exemptions, any institutional financial aid is subtracted from the countable aid a team reports at the end of the year (NAIA, 2022).

College Experience

College experience includes constructs for both academic and social integration. Academic integration includes college GPA. The higher the GPA, particularly in the first year of attendance, the greater the influence on retention and degree completion (Chen, 2012; Dowd, 2004; Millea et al., 2018). In addition, faculty interaction is found to have a significant impact on student success (Kuh et al., 2006; Tinto, 2006). Social integration such as participation in extracurricular offerings, contact with peers, and living on campus also positively influence retention rates (Boatman & Long, 2016; Chen, 2012). For eligibility requirements, athletes must maintain minimum GPAs, as well as progress towards a degree to remain eligible. While these standards are often criticized for being too low (Eckard, 2010; Ridpath, 2008; Staurowsky et al., 2020), the NAIA does incentivize athletic departments for recruiting high achieving athletes and maintaining high academic standards as students' progress through degree programs.

Organizational Factors

Organizational attributes of institutions include variables such as control, size, selectivity, faculty-student ratios, and institutional resources (Chen, 2012). Among four-year public institutions retention rates range from 97% at the most selective institutions to 63% at the least selective. Similar trends in student retention are seen among four-year private institutions ranging from 65% to 97% at institutions from low to high selectivity. Graduation rates follow similar patterns, ranging from 34% at open-admission four-year institutions up to 90% at the most selective schools (Hussar et al., 2020). However, according to findings from Chen (2012), institutional variables such as selectivity and control do not significantly influence student success, but rather how institutions allocate resources may have a more powerful contribution to retention and graduation outcomes. For college athletes, of the limited research available that includes institutional variables Mendez et al. (2009) discovered that college athletes attending regional institutions had lower persistence rates than those attending research institutions likely due to lower pre-college preparation of athletes and a lack of resources for academic support (Mendez et al., 2009).

Financial Factors

Research points to differences in various forms of financial aid and their influence on student success outcomes; however, there is no consensus on which type of aid is most significant (Chen, 2008). The influence of federal student loans on student retention and graduation is mixed (Robb et al., 2012). Grant-based aid is a source of financial aid often allocated on need and includes federal Pell grants, state grants, and/or institutional need-based grants. Many studies examining the influence of grant aid demonstrated a positive effect on encouraging enrollment (Bettinger, 2015) and retention (Boatman & Long, 2016). Studies examining the role of merit/scholarship aid in retention support a positive influence (DesJardins et al., 2002; Kuh et al., 2008), and this aid type is commonly distributed to students at private

non-profit institutions (Hussar et al., 2020). Awarding scholarship dollars based on merit rather than financial need has been shown to disproportionately benefit higher-income students (Chen, 2008; Dowd, 2004). Despite this criticism, the use of merit aid in financial aid packages plays an integral role in institutional enrollment management and student retention. The Federal Work Study program improves college access and promotes student success through campus-based employment opportunities for students with financial needs (Scott-Clayton & Zhou, 2017). Work-study funding is allocated to institutions to distribute to qualifying students in exchange for approximately 10-15 hours of work. While the wages for work-study are often low, the benefits include alleviating transportation barriers, performing work that can enhance learning, and future employment opportunities post-graduation (Nora et al., 2006).

Many athletes are motivated to pursue athletic scholarships to lower college costs. Athletic scholarships may influence initial enrollment decisions, improve college affordability (Mendez et al., 2009), signal an institution's commitment to a student, and improve the retention of college athletes (Millea et al., 2018). While these are positive aspects connected to athletic scholarships, potential negative effects may result from financially rewarding students solely for athletic ability, reinforcing athletic identity which may diminish academic performance (Ridpath, 2008). Mendez et al. (2009) examined the "effectiveness of financial aid packages in predicting persistence among intercollegiate athletes at postsecondary institutions in Oklahoma, with special attention to minority groups" (p.3). Utilizing Chen's (2008) framework for the study of financial aid outcomes, student information was from multiple institutional types including, "30% from NCAA Division I, 53% Division from II, about 7% from the NAIA, and 10% of students are in one school that belongs to both NAIA and NCAA Division II for football only" (Mendez et al., 2009, p. 8). Students were identified as athletes if they received an athletic scholarship. Results from this study indicated White college athletes benefit the most from financial aid packages and that minority, low-income college athletes improved retention when the aid was in the form of grants (Mendez et al., 2009).

Time in College

Although the first academic year is critical to long-term academic success, accounting for the time-varying effects on student departure is important. While upperclassmen are more likely to persist than freshmen, the risk of dropping out continues even after achieving initial success in college (Nora et al., 2005). Studies have found sense of belonging, financial aid types, and amounts change over time and consequently influence behavior differently as students persist (DesJardins et al., 2002; Kamer & Ishitani, 2021; Means & Pyne, 2017). Additionally, college athletes are allocated a limited amount of time for athletic participation. According to the NAIA Policy Handbook, an athlete's eligibility ends upon completing 10 semesters in which the student is identified. Additionally, the policy handbook states, "no student shall be permitted to participate in intercollegiate athletics for more than four seasons in any sport" (2022, p. 75). NAIA Athletes have 10 semesters of full-time

enrollment to compete in athletics for eight semesters. Along with a limited amount of time to participate in athletics, college athletes must enroll full-time and complete 24 credit hours over two semesters while making progress toward a degree to remain eligible (NAIA, 2022).

The research questions that guide this study are:

1. How are institutional financial aid packages, background characteristics, college experience factors, athletic characteristics, organizational structure, and time in college associated with athlete retention at four-year member institutions in the NAIA?
2. How are institutional financial aid packages, background characteristics, college experience factors, athletic characteristics, organizational structure, and time in college associated with athlete graduation at four-year member institutions in the NAIA?

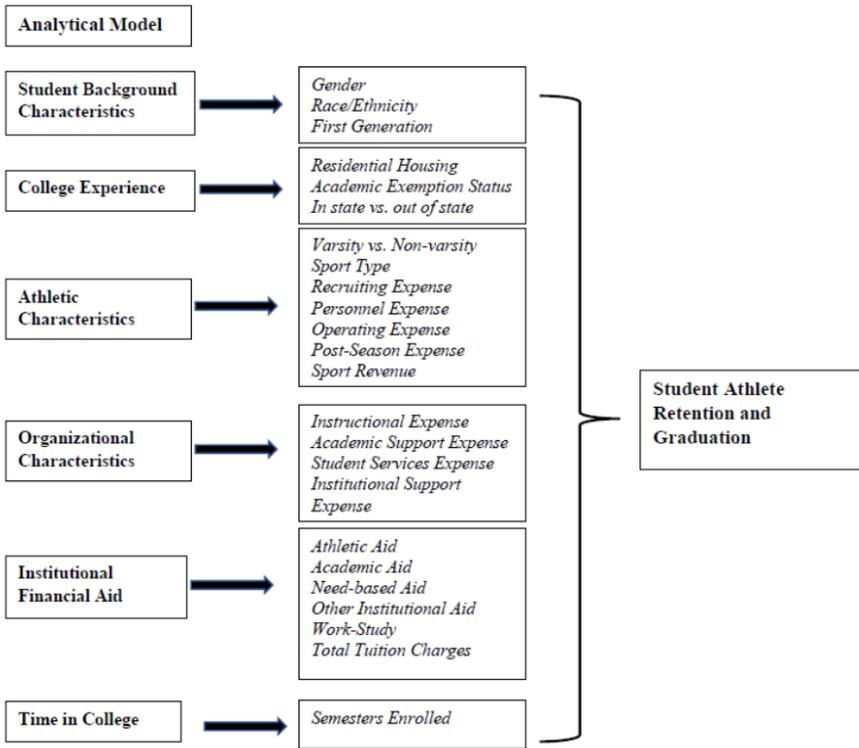
Method

Guided by Chen's (2008) conceptual framework, a quantitative method was employed to answer the theorized research questions. The framework utilized variables drawn from five different theoretical areas including psychological, sociological, organizational, interactionist, and economic theories (Chen, 2008). College athletes participating within the NAIA are largely unstudied; therefore, the relationship between athlete characteristics and student success outcomes can be examined by building on the existing college athlete literature and by utilizing Chen's conceptual framework. This study utilizes logistic regression to analyze data collected from six institutions for the NAIA's ROA initiative to explore the relationship between characteristics of athletes, retention, and degree completion.

Data Source and Sample

The research relied on institutions from one athletic conference to voluntarily share ROA data. The conference utilized consists of 12 regionally accredited not-for-profit Midwestern institutions located across five states. While nine institutions submitted ROA data, three of the datasets were missing some variables resulting in six total institutions analyzed. The NAIA provides a ROA template for campus administrators to complete as a part of end-of-year reporting. The final data set for this study contains institutional and athlete information for a sample size of 1,142 athletes from the academic year 2019-2020. In addition to the ROA data, institutional data was gathered utilizing the National Center for Educational Statistics, Integrated Postsecondary Education Data System (IPEDS).

Figure 1. Self-Created Analytical Model



Dependent Variables

The dependent variables are retention and graduation. Retention is defined as a first-time, full-time degree-seeking student who reenrolls at the same institution fall-to-fall (McFarland et al., 2019). Retention was assessed for groups of athletes who are not identified as Graduated or identified in the Final Academic Term Enrolled, indicating athletes who have left the institution but did not graduate (NAIA, n.d.c). The second dependent variable is graduation, defined as the completion of a bachelor’s degree within six years for first-time, full-time degree-seeking students (McFarland et al., 2019). For this study, graduation is assessed for groups of student-athletes who are identified as Graduated in the data set (NAIA, n.d.c).

Independent Variables

The independent variables utilized in this study are depicted in Figure 1 and defined in Table 1. Independent variables include student background characteristics such as race & gender; college experience which includes on/off campus and in/out of state along with academic exemption status based on GPA and class rank; athletic experience such as varsity/non-varsity and sport played; organizational factors such

as expenses for instruction, academic support, and student services; institutional financial aid including athletic, need-based, and other scholarships/work-study; and the final category of time in college uses the measurement of semesters enrolled in school.

Data Analysis

Logistic regression models were employed to analyze data using STATA statistical software. The logistic regression model predicts the logit or natural logarithm (ln) of odds of the dependent or outcome variable (for example, retention); where odds are ratios of probabilities (π) of the outcome variable happening (athlete being retained) to probabilities ($1 - \pi$) of the outcome variable not happening (athletes not being retained). Additionally, logistic regression utilizes the maximum likelihood approach to estimate the parameters (Yang & Webber, 2015).

To address the research questions, two logistic models were utilized. Models 1-2 use all athletes in the sample to assess how various factors influence retention (model 1) and graduation (model 2) and assess the two research questions. The models are represented by the following formula for logistic regression:

$\text{Log} [\pi_i / (1 - \pi_i)] = \beta_0 + \beta_1 \text{ background characteristics} + \beta_2 \text{ college experience} + \beta_3 \text{ athletic characteristics} + \beta_4 \text{ organizational characteristics} + \beta_5 \text{ financial factors} + \beta_6 \text{ time in college} + \epsilon$. In the equation, π_i indicates the probability that $y_i = 1$ (in Model 1: athlete being retained during college = 1 and 0 = not retained, Model 2: did athlete graduate from college = 1 and 0 = not graduated. The reference group represented by β_0 is constituted by those students representing the reference level of each variable and β represents a set of coefficients for each variable. The results of the logistic regression are summarized and interpreted as odds ratios where an odds ratio equal to one indicates no relationship, greater than one indicates a positive relationship and less than one indicates a negative relationship (DesJardins, 2001).

Similar sets of independent variables were created for all models. The independent variables were organized into six blocks and added into the models following in proximity to the conceptual framework. The analysis was completed in multiple steps. The first step consisted of examining the raw data submitted by each institution to review the available variables and confirm variables align with the conceptual framework. Step two consisted of recoding and finalizing each institutional data set individually via Excel files consisting of institutional, athletics, and athlete data. Identification was categorized via a generic identifier of a letter representing the institution and a number representing the athlete. The variables from the institutional data and athletics data were added to the athlete-level information resulting in one Excel file per institution. In the ROA data template athletic financial variables are reported as total dollar amounts for each sport. To account for differences in the number of athletes per sport the athletic financial variables (recruiting expense, personnel expense, operating expense, post-season expense, and revenue) were recalculated as expenses and revenue per athlete for each sport. Additionally, institutional data from IPEDS was added to each Excel file. To generate the gender variable the researcher utilized the gender assigned to each sport category (i.e., men's basketball, women's

basketball etc.). Categorical variables were re-coded. Continuous variables were not re-coded. Step three consisted of merging the data of the six institutions into one comprehensive data set. After the six individual institutions were merged, the large comprehensive data set was imported into STATA for data analysis.

Table 1: Independent Variable Definitions

Variable	Definition of Variable
Gender	Gender is a categorical variable dummy coded where the reference group female = 0 and 1 = male.
Race/Ethnicity	Race/Ethnicity is a categorical variable dummy coded where 0 = White, 1 = Black, 2 = All Other Minority, and 3 = Preferred not to answer.
First Generation	First Generation is a categorical variable coded 0 = No, 1 = Yes, 2 = Unknown where No (not first generation) is the reference group.
Residential Housing	Residential housing is represented by a categorical variable where 1 = Off-campus and 0 = on-campus representing the reference group.
Academic Exemption	The NAIA awards academic exemptions to athletes based on grade point average and class rank. In the dataset, academic exemptions are coded as 0 = Zero Exemption, 1 = ½ GPA Exemption, 2 = Full GPA Exemption, 3 = ½ Freshman Exemption, and 4 = Full Freshman Exemption. The reference group for this independent variable is the Zero Exemption group. This group has the greatest number of observations and would represent lower academically performing students.
In-State vs. Out-of-State	A categorical dummy variable derived from the tuition classification reported in the ROA dataset where the reference group 0 = in-state, 1 = out-of-state, 2 = regional, and 4 = graduate/other tuition rate.
Varsity vs. Non-Varsity	A varsity athlete is any “athlete who participates as a designated varsity participant; who participates in a contest that is included in varsity’s win/loss record; who participates in a contest that can be used for postseason qualification; or who participates in a contest that can be counted towards the varsity’s team scoring” (NAIA, October, 2020, p. 85). A non-varsity athlete is any “students that competed at the junior varsity level or who is a non-participating member of the team” (NAIA, 2020-2021 ROA Glossary, p. 3). This is a categorical variable where the reference group is non-varsity = 0 and varsity = 1.
Sport Type	This is a categorical dummy variable where 0 = individual sports and 1 = team sports.

Recruiting Expense	A continuous variable defined as “any expense incurred by a specific sport or athletic department during the recruitment of an athlete” (NAIA, n.d.b, p. 4).
Personnel Expense	A continuous variable “indicates standard salary packages for athletic department personnel” (NAIA, n.d.b, p. 4).
Operating Expense	A continuous variable defined as any “expenses incurred by a specific sport or athletic department attributed to the participation in any regular season and conference post-season athletic competitions” (NAIA, n.d.b, p. 3).
Post Season Expense	A continuous variable defined as “expenses incurred by a specific sport or athletic department attributed to participation in a NAIA national championship opening round and final site events” (NAIA, n.d.b, p. 4).
Revenue	A continuous variable defined as the “revenues attributed to a specific sport or general athletic department fund excluding revenue from tuition, room, and board. Revenue would include fundraising, ticket sales, sponsorships etc.” (NAIA, n.d.b, p. 5).
Instruction expense as a percent of total core expenses:	A continuous variable, defined as a “functional expense category that includes expenses of all instructional divisions of the institution and expenses for departmental research and public service that are not separately budgeted, including general academic instruction, occupational and vocational instruction, community education, preparatory and adult basic education, and regular, special, and extension sessions” (NCES, 2021, p. 22)
Academic support service expenses as a percent of total core expenses	A continuous variable, defined as “a functional expense category that includes expenses of activities and services that support the institution's primary missions of instruction, research, and public service” (NCES, 2021, p. 2).
Student service expenses as a percent of total core expenses	A continuous variable, defined as an “expense category that includes expenses for admissions, registrar activities, and activities whose primary purpose is to contribute to student’s emotional and physical well-being and to their intellectual, cultural, and social development outside the context of the formal instructional program” (NCES, 2021, p. 38)
Institutional support as a percent of total core expenses	A continuous variable, defined as “a functional expense category that includes expenses for the day-to-day operational support of the institution” (NCES, 2021, p.22).
Athletic Aid	A continuous variable, defined as any athletics-specific scholarship, grant, or other form of financial assistance funded or managed by the institution (NAIA, n.d.b).
Academic Aid	A continuous variable, defined as any academic-specific scholarship, grant, or financial assistance funded or managed by the institution (NAIA, n.d.b).

Need-Based Aid	A continuous variable, defined as any scholarship, grant, or financial assistance awarded according to need and is funded or managed by the institution (NAIA, n.d.b).
Other Institutional Aid	A continuous variable, defined as any scholarship, grant, or financial assistance that is funded and managed by the institution that does not fit into any of the other aid categories (NAIA, n.d.b).
Work-Study	A continuous variable, defined as any financial aid applied against a student's costs of attendance that requires a student to work part-time on campus in exchange for the financial award (NAIA, n.d.b).
Tuition Charge	A continuous variable, representing the total tuition charged according to the tuition classification in the dataset.
Time in College	Semesters enrolled is a categorical dummy variable created to represent the time the athlete has been enrolled at the current institution. Four categories were created where 0 = enrolled for one or two semesters, 1 = enrolled for three or four semesters, 2 = enrolled for five or six semesters, and 3 = enrolled for seven or more semesters.

Results

Table 2 provides descriptive statistics including the mean and standard deviation for all variables. Of the 1,142 athletes represented males accounted for more than half of all athletes (54.81%). The largest group for Race/Ethnicity was Preferred not to answer (47.99%) with White (36.89%) athletes being the second largest group. Of White athletes, females accounted for 52.14%. For all remaining Race/Ethnicity categories, males accounted for the majority where 63.44% of Black athletes, 66.25% of All Other Minority, and 57.01% Preferred not to answer are male. Additionally, over 31% of the athletes were not first-generation students; however, similar to the variable for Race/Ethnicity, 59% reported as unknown, with 8% indicating first-generation status. 19.06% of continuing athletes and 4.55% of freshman athletes received a full academic exemption indicating athletes who performed the highest academically whereas 58% of all athletes in this data set received zero exemptions for academic performance. Most athletes participated in varsity athletics and team sports (68%). The highest expense category consisted of operating expenses with an average of \$1,846.70 spent per athlete. Personnel expense per athlete is the second highest athletic expense category with an average of \$1,716.40 spent per athlete. The average amount of sport revenue generated per athlete is \$996.67. Of the four variables representing organizational effects the greatest portion of institutional expenses was directed toward instructional expenses with academic support services receiving the smallest portion.

The average institutional cost, including tuition, room, and board charged was approximately \$24,884 with an average tuition charge of \$20,346. The average total amount of financial aid awarded was \$12,095.59. Of the financial aid categories,

athletic aid was awarded in the greatest amount with an average of \$5,385.48 and academic aid was second highest with a \$4,911.52 average. Lastly, 39% of the athletes have been enrolled for two or fewer semesters, 26% for four semesters, 19% for six semesters, and approximately 14% have been enrolled for 8 or more semesters. Lastly, for the academic year 2019-2020 approximately 84% of all athletes were retained and 12% completed their degrees.

Table 2: Descriptive Statistics for Selected Variables (n = 1,142)

	Mean	SD
<i>Student Background Characteristics</i>		
Gender: Male (%)	54.81	-
Race/Ethnicity: White (%)	36.89	-
Black (%)	8.13	-
All Other Minority (%)	6.99	-
Preferred not to answer (%)	47.99	-
First Generation: No (%)	31.91	-
Yes (%)	8.48	-
Unknown (%)	59.62	-
<i>College Experience</i>		
Off-Campus Housing (%)	53.24	-
Academic Exemption: Zero (%)	58.67	-
½ Continue Exemption (%)	13.20	-
Full Continue Exemption (%)	19.06	-
½ Freshman Exemption (%)	4.55	-
Full Freshman Exemption (%)	4.55	-
In-state (%)	93.01	-
Out-of-State (%)	2.01	-
Regional (%)	1.92	-
Graduate (%)	3.06	-
<i>Athletic Characteristics</i>		
Varsity	85.75	-
Sport Type: Team Sports (%)	68.53	-
Recruiting Expense (\$)	99.89	210.19
Personnel Expense (\$)	1,716.40	1,540.10
Operating Expense (\$)	1,846.70	1,263.33
Post-Season Expense (\$)	45.84	367.87
Sport Revenue (\$)	996.67	3,244.31
<i>Organizational Characteristics (%)</i>		
Instructional Expense	45.44	8.25
Academic Support Expense	8.67	4.79
Student Services Expense	10.84	5.82
Institutional Support Expense	22.10	8.20

Institutional Financial Aid (\$)

Athletic Aid	5,385.48	5,546.10
Academic Aid	4,911.52	5,699.17
Need-based Aid	460.37	1,580.16
Work-Study	153.82	575.11
Other Institutional Aid	1,184.38	2,594.29
Total Financial Aid	12,095.59	8,353.83
Total Tuition Charge	20,346.31	10,441.23
Total Charges	24,884.88	11,801.32
<i>Time in College</i>		
1-2 semesters	39.77	0.49
3-4 semesters	26.14	0.44
5-6 semesters	19.76	0.39
7 or more semesters	14.34	0.35
Retention (%)	84.44	0.36
Graduated (%)	12.93	0.33

Research Question #1

Table 3 shows the logistic regression results for Model 1, factors that predict athlete retention for all athletes enrolled ($n = 1,142$). Included in the model are independent variables that are detailed in Table 1. Results indicated athletes retained were less likely to have an Unknown first-generation status ($OR = 0.041, p < .001$), were 8 times more likely to receive a one-half continuing academic exemption ($p < .001$), and 4.2 times more likely to receive a full continuing academic exemption ($p < .001$). Moreover, varsity athletes were 2.3 times more likely to be retained than non-varsity athletes ($p < .01$). The organizational characteristics of instructional expense ($OR = 1.179, p < .01$), student service expense ($OR = 1.447, p < .001$), and institutional support expenses ($OR = 1.476, p < .001$) had a positive influence on retention; whereas academic support expenses were less likely to influence retention ($OR = 0.598, p < .001$). Although all the categorical variables indicating semesters enrolled had a positive influence on retention, only the final two categories reached a level of significance where athletes who were enrolled for 5-6 semesters ($OR = 2.977, p < .01$) and 7 or more semesters ($OR = 2.695, p < .01$) were more likely to be retained than those athletes who had only been enrolled 1-2 semesters. None of the institutional financial aid variables were found to be significant in this model.

Table 3: Logistic Regression Analysis for Variables Predicting Retention for All Student Athletes Enrolled in AY 2019-2020 (n=1,142)

	Model 1		
	OR	SE	
<i>Student Background Characteristics</i>			
Male	0.915	0.192	
Black	1.073	0.411	
All Other Minority	2.746	1.502	
Preferred not to answer	0.717	0.276	
First Generation: Yes	1.122	0.485	
Unknown	0.041	0.020	***
<i>College Experience</i>			
Off Campus housing	0.945	0.212	
½ Continue Exemption	8.092	4.206	***
Full Continue Exemption	4.241	1.630	***
½ Freshman Exemption	1.061	0.424	
Full Freshman Exemption	2.604	1.399	
Out-of-state	1.895	1.734	
Regional	0.630	0.458	
Graduate/Other	0.723	0.401	
<i>Athletic Characteristics</i>			
Varsity	2.341	0.596	**
Sport Type: Team Sports	1.539	0.388	
Recruiting Expense	0.934	0.082	
Personnel Expense	1.019	0.159	
Operating Expense	1.004	0.207	
Post-Season Expense	1.133	0.116	
Sport Revenue	1.026	0.057	
<i>Organizational Characteristics</i>			
Instructional Expense	1.179	0.058	**
Academic Support Expense	0.598	0.076	***
Student Services Expense	1.447	0.094	***
Institutional Support Expense	1.476	0.122	***
<i>Institutional Financial Aid</i>			
Athletic Aid	1.043	0.032	
Academic Aid	1.038	0.034	
Need-based Aid	1.024	0.042	
Work-Study	1.115	0.069	
Other Institutional Aid	1.027	0.039	
Total Tuition Charge	0.685	0.208	
<i>Time in College</i>			
3-4 semesters	1.127	0.275	
5-6 semesters	2.977	0.971	**
7 or more semesters	2.695	0.982	**

Note: Reference group for Gender is female, for Race/Ethnicity is White, for First Generation is No, for Academic Exemption is Zero. *** $p < .001$ ** $p < .01$ * $p < .05$

Research Question #2

This sample includes athletes who graduated from member institutions in the academic year 2019-2020 and includes the same variables as Model I used in RQ1. Table 4 reports the results from Model 2, which includes factors that predict graduation for athletes enrolled in the academic year 2019-2020. Results indicated Black athletes are 2.7 ($p < .05$) times more likely to graduate than White athletes. In addition to Race/Ethnicity, the other background characteristic that positively influenced graduation is an Unknown first-generation status (OR = 21.138, $p < .001$). Overall athletes with a full continuing academic exemption were more likely to graduate than those who receive no exemptions for academic performance (OR = 2.726, $p < .01$) and more likely to live off campus (OR = 2.102, $p < .05$). Also, as the post-season expenses increased, the odds of athletes graduating decreased (OR = 0.711, $p < .05$) and as the number of semesters enrolled increased from 2-3 semesters up to 7 or more, so too did the odds of degree completion (OR = 10.794, $p < .01$; OR = 27.945, $p < .001$; OR = 269.164, $p < .001$). Although none of the institutional financial aid variables influenced retention, athletes who receive work-study were more likely to graduate (OR = 1.109, $p < .05$). Although athletes are motivated to participate in intercollegiate athletics for many reasons, earning an athletic scholarship to reduce the cost of attendance is reported to be a primary goal (Mendez et al., 2009). None of the financial aid variables were found to significantly influence overall retention and only work-study influenced graduation for athletes. These findings counter previous research where earning an athletic scholarship has been shown to be associated with retention (LeCrom et al., 2009; Millea et al., 2018).

Table 4: Logistic Regression Analysis for Variables Predicting Graduation for All Student Athletes Enrolled in AY 2019-2020 (n=1,039)

	Model 2		
	OR	SE	
<i>Student Background Characteristics</i>			
Male	1.127	0.309	
Black	2.764	1.425	*
All Other Minority	1.070	0.558	
Preferred not to answer	1.553	0.745	
<i>First Generation: Yes</i>	1.066	0.530	
Unknown	21.138	12.618	***
<i>College Experience</i>			
Off Campus Housing	2.102	0.664	*
½ Continue Exemption	1.585	0.573	
Full Continue Exemption	2.726	0.897	**
Out-of-state	1.168	0.958	
Regional	1.919	1.519	
Graduate	1.595	0.959	
<i>Athletic Characteristics</i>			
Varsity	0.672	0.275	
Sport Type: Team Sports	1.108	0.351	
Recruiting Expense	0.913	0.104	
Personnel Expense	1.161	0.289	
Operating Expense	1.058	0.287	
Post-Season Expense	0.711	0.099	*
Sport Revenue	0.994	0.063	
<i>Organizational Characteristics</i>			
Instructional Expense	2.039	72.677	
Academic Support Expense	0.327	22.322	
Student Services Expense	0.979	11.496	
Institutional Support Expense	1.241	30.705	
<i>Institutional Financial Aid</i>			
Athletic Aid	1.037	0.045	
Academic Aid	1.002	0.044	
Need-based Aid	0.894	0.066	
Work-Study	1.109	0.057	*
Other Institutional Aid	1.015	0.046	
Total Tuition Charge	1.195	0.452	
<i>Time in College</i>			
3-4 semesters	10.794	8.259	**
5-6 semesters	27.945	21.231	***
7 or more semesters	269.164	206.840	***

Note: Reference group for Gender is female, for Race/Ethnicity is White, for First Generation is No, for Academic Exemption is Zero.

*** $p < .001$ ** $p < .01$ * $p < .05$

Discussion

The purpose of the NAIA's ROA initiative is to assist member institutions with aligning collegiate athletics with institutional priorities (NAIA, n.d.). Approximately, 84% of athletes represented and enrolled for the academic year 2019-2020 were retained; a higher value than reported for this same academic year across the NAIA (66%) (Cocco et al., 2023a). Retention rates vary among four-year public and private institutions ranging from 65% to 97% at institutions from low to high selectivity (Hussar et al., 2020). Provided that several of the institutions represented are classified as inclusive or low selectivity, the overall retention rate found is promising. Previous research demonstrates higher retention rates for athletes in comparison to the student body (Johnson et al., 2013; Melendez, 2006); however, making comparisons between non-athletes and athletes is difficult due to differences in how athletes interact with the campus environment, variations across sport played, and distinctions in how retention and graduation rates are calculated (College Sport Research Institute, 2020-2021.).

Minority students and/or first-generation students are at risk groups for retention (Baker & Hawkins, 2016; Comeaux & Harrison, 2007; Pratt et al., 2019). Results indicate a positive odds ratio for both groups, although not at a significant level. A large percentage with an unknown first-generation status created a gap in understanding how athletes' background characteristics influence retention. It is possible that the athlete did not know the education level of their parents and/or guardians, or the institution simply does not collect this information, or errors occurred in reporting the data. Chen's framework includes variables representing a student's college experience, such as GPA, to assess retention (Chen, 2012). Results denote athletes with higher GPAs are more likely to be retained. This finding is not surprising but is important when working to identify athletes who may be at risk for retention. Although data do not include exact GPAs, the academic exemption variables do allow athletes to be grouped according to academic performance. The findings indicate that athletes who had a one-half academic exemption ($GPA \geq 3.0 \leq 3.59$) were 8 times more likely to be retained than those who had zero academic exemptions ($GPA < 3.0$). Athletes with a full academic exemption ($GPA \geq 3.6$) were 4 times more likely to be retained. These academic exemptions may be useful tools in identifying athletes at risk of dropping out or who could benefit from additional academic support.

Although the cut-off point for the one-half academic exemption is a 3.0 GPA, the minimum GPA for athletic eligibility is 2.0, a requirement that does not appear until the junior year (NAIA, 2022). This zone of GPAs between 2.0 and 3.0 has been coined "the murky middle" in the higher education literature (Tyson, 2014). It represents a group of students who may largely not trigger high risk concerns within the institution (Tyson, 2014). However, this middle GPA group of students is less likely to seek academic support on their own and is at an increased risk for dropping out after completing the first year of college (Schreiner, 2018; Tyson, 2014). Previous research examining the relationship between athlete academic success and GPA found variations across sport type and season of competition (Dilley-Knoles et al.,

2010). Female athletes were found to have higher grade point averages (LeCrom et al., 2009; Staurowsky et al., 2020), and a coach, athletic department, and institution emphasizing high academic importance influences college athlete academic success (Ridpath, 2002; Tudor & Ridpath, 2018). While the 2.0 standard is the minimum for athletic eligibility, communicating a higher target of 3.0 and connecting students to support services may facilitate more athlete academic success and increase retention. Institutions should work to identify athletes with a grade point average below 3.0 and provide early academic support rather than intervening when athletic eligibility is jeopardized at a lower grade point average.

In addition to providing early intervention based on academic performance, the results of this study indicate a need to support athletes through the four semesters of enrollment. Most research identifies the freshman year as high-risk for dropout, therefore institutions focus resources on freshman success initiatives (Millea et al., 2018; Nora et al., 2005; Tinto, 2006). Time in college did not have a positive effect until the five-semester mark when athletes were 2.9 times more likely to be retained. Investing in freshman success initiatives may help students initially create momentum toward degree completion, but institutions should also examine what types of programming are available to maintain later student engagement to maintain momentum towards degree completion.

Varsity athletes were found to be 2.3 times more likely to be retained in comparison to their non-varsity peers. Although non-varsity athletes do not participate in competitions that are included in varsity win/loss records or those that qualify for post-season competitions, non-varsity athletes must meet all academic eligibility requirements (NAIA, August 2022). Only 33% of NAIA institutions offer non-varsity programs (Cocco et al., 2023d); however, the NAIA reports benefits to the institution's ROA in enrollment and tuition revenue generated. Specifically, when examining the impact of junior varsity (JV) programs on net return findings indicated 33% of institutions offered JV programs and averaged a higher net return (\$3.5 million) in comparison to institutions that did not offer JV programs (\$1.8 million). Although the total number of non-varsity athletes may be smaller than varsity athletes, the tuition revenue generated is often higher per non-varsity athlete than per varsity athlete. This increased revenue per non-varsity athlete can substantially add to the overall tuition revenue generated via intercollegiate athletics (Cocco et al., 2023d).

According to a recent research brief, when comparing retention rates for institutions that offer JV programs with a minimum of 100 junior varsity athletes to those without JV programs the total retention rate was slightly higher with JV programs, and 16 of 22 sports had higher total retention rates with JV programs (Cocco et al., 2023d); however, it is unclear if those who are not retained are varsity or non-varsity athletes. The results of this study indicate that retaining non-varsity athletes may be problematic. Administering non-varsity athletic programs may improve an institution's financial stability but more research is needed to understand and ensure the academic success of non-varsity athletes.

The final variables influencing the retention of athletes include organizational characteristics. Although academic support expenses had a negative influence on

retention, the remaining three expense categories had a positive effect. Interestingly, none of the organizational characteristic variables were shown to influence graduation. How institutions allocate spending may work to support retaining students, particularly those expense categories that most directly influence the student experience (Chen, 2012), but according to the findings of this study may lose importance as students move toward graduation.

While none of the Race/Ethnicity categories significantly influenced retention, Black athletes are 2.7 times more likely to graduate in comparison to White athletes. This finding contradicts previous research where Black males specifically were often reported to demonstrate lower graduation rates (Baker & Hawkins, 2016; Harper, 2016; Horton, 2015); however, Black female athletes are often reported to have higher graduation rates in comparison to their non-athlete peers (Staurowsky et al., 2020). Results show a positive odds ratio for males; however, gender was not significant. Overall, Black athletes account for a small portion (8%) of the total sample for this study and therefore, this finding has limited implications and may not be generalizable to athletes outside of those represented in this dataset. Nonetheless, this finding is positive and indicates that the small college athletic and academic environment at these institutions fosters academic success for a potentially at-risk population of athletes. Indeed, athletic participation connects students to financial resources and support networks of teammates and coaching staff, and the model of athletics found within the NAIA is far removed from the negative issues found particularly in the upper divisions of the revenue-generating NCAA. This model of athletics coupled with the small student-to-faculty ratio present at the institutions represented in this study allows for a more personalized academic experience which has been found to be important for athletes (Comeaux & Harrison, 2007) may help explain this finding.

While the unknown first-generation group was found to be an at-risk group for retention, for those who are retained, this group of athletes are more likely to graduate. Similar to the difficulty in interpreting this group for the retention model, without more information it is difficult to speculate why this group may experience success in completing degrees.

The only financial aid variable shown to influence degree completion is work-study. It is possible that on-campus jobs are likely to be more athlete-friendly, allowing NAIA athletes flexibility to balance work with academic schedules and athletic time requirements. Previous research found positive associations between work-study and retention and time to degree completion within the general body (Letkiewicz et al., 2014). Beron and Piquero (2016) found having a job significantly influenced athletes' academic success specifically for male, Division III athletes. Furthermore, Weiss and Robinson (2013) found a lack of time to get a job and earn spending money to purchase necessities and pay bills added to financial stress as a significant cause for athletes to leave athletics.

Limitations & Recommendations

This study has a few limitations. The first limitation is the inclusion of data from member institutions within a single NAIA conference; therefore, results may not be

generalizable to other institutions outside of the conference. A second limitation is ROA data was self-reported by the institutions. Self-reported data can lead to inconsistencies in interpretation, reporting of variables, and self-reporting bias. Additionally, the data include secondary data limiting the researcher to only the variables that were available. The data contain information for only one year, limiting the ability to analyze the temporal effects of the variables for financial aid, retention, and graduation. Also, the data reporting period is over the academic year 2019-2020, coinciding with the Covid-19 pandemic. Like the NCAA, the NAIA extended eligibility for groups of athletes because of the pandemic (NAIA, n.d.a); therefore, it is possible that some athletes chose not to graduate thus influencing the results. Large percentages of background characteristic data are reported as Unknown, for first-generation status or Preferred Not to Answer for Race Ethnicity variable. Provided these are options for reporting this data in the template provided by the NAIA and to maintain the sample size of the present study; as well as consistency of variables included in the model for future analysis the cases and variables were included while recognizing the limitation in the interpretation of the results.

Based on the findings, a few areas for future inquiry are noted. First, continued data collection for additional ROA research is recommended as this is an exploratory study intended to drive future research. While the findings of this research are promising, this research includes only one year of data and should be interpreted as preliminary results. Future research should investigate any methods and results from this study. Additionally, when subsequent years of data become available a longitudinal analysis could be completed with a more complete and robust data set. Also, investigating findings related to varsity and non-varsity athlete retention with the addition of variables such as GPA and credit accumulation. The current ROA dataset does not include these two variables; therefore, the academic standing of athletes could not be directly assessed. Since the results indicate non-varsity athletes share many characteristics of known at-risk populations of such as male, minority, and first-generation, it is imperative to further investigate and understand the experience of non-varsity athletes, considering institutions can garner higher amounts of tuition revenue from this population (NAIA, April 13th, 2019). It is possible that this non-varsity population of athletes enters the institution to pursue intercollegiate athletics and ultimately transfers out academically intact with completed credits and a GPA in good standing. If this is the case, then the short time spent at the institution as a non-varsity athlete would have some benefit. However, if a non-varsity athlete left in poor academic standing and dropped out of higher education completely, it's a disservice to the athlete. Institutions that administer non-varsity athletic programs have a responsibility to further investigate the retention and academic success of non-varsity athletes.

Other areas for future research include an examination of roster sizes as enrollment drivers versus actual playing time, the influence of work-study, examining the influence of athletic success on graduation rates, and a comparison of athletes and non-athletes. Also, using other empirically tested analytical models can also add to the breadth and depth of future study. Given the importance of work-study, addition-

al research investigating this athlete-work-study relationship may provide a better understanding of how it influences academic success for this group. Lastly, provided the specialized nature of the ROA dataset focusing on athletes, comparisons could not be made to non-athletes. As NAIA institutions continue to invest institutional dollars in athletic programs to drive enrollment and generate revenue, ensuring the academic success of athletes is imperative. The findings of this research highlight several areas of success for athletes and showcase NAIA athletes, a group largely unrepresented in the literature. In addition to areas of effectiveness, several areas were identified for improvement where institutions can work to progress the athlete's academic experience. This research explores how intercollegiate athletics may work to promote improved outcomes for both the athlete and the institution. With further research, NAIA institutions can work to enhance the athlete experience and improve retention and graduation rates.

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