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Predicting NJCAA Student-Athlete Success: An Analysis of Graduation over a 5-Year Period Using Precollege and College Variables at a 2-Year Institution

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Abstract

College student-athletes have to navigate unique challenges in order to graduate on time primarily due to their dual roles on campus (Beron & Piquero, 2016; Cooper et al., 2017). While previous research has primarily explored predictors of academic success (e.g., graduation within 150% of the standard completion time) among student-athletes at NCAA Division I institutions,

this study addressed the significant gap in knowledge specific to NJCAA Division I student- athletes. This quantitative study extended the work of Autry (2010) by investigating the

precollege and college predictors of academic success among 2-year student-athletes at a NJCAA Division I institution in the Midwest United States from 2013 to 2018. Similar to Autry (2010), the precollege predictors included high school grade point average (HSGPA), socioeconomic status (SES), first-generation status, race, and gender, while the college predictors encompassed residency status, athletic participation (team or individual), scholarship status, GPA for the first three semesters, major, Pell Grant eligibility, degree hours, and course withdrawals during the freshman year.

Using multivariate logistic regression analyses, the key findings identified key precollege variables such as gender, race, residency, first-generation status, Pell Grant eligibility, and HSGPA to impact NJCAA student-athletes' on-time graduation. Notably, the study revealed disparities in graduation rates based on gender and race, where female student-athletes and those with higher HSGPAs exhibited a higher likelihood of graduation, highlighting the pivotal role of precollege academic preparedness. Conversely, students from out-of-state or lower socioeconomic backgrounds, as inferred from Pell Grant eligibility, demonstrated a lower probability of graduating. The study also identified the influence of academic factors such as chosen major, college GPA, and course withdrawal patterns on their likelihood of graduating, with particular sports showing a positive impact on graduation rates.

These findings hold significant implications for educators, administrators, and athletic programs, offering valuable insights to design targeted interventions and evidence-based strategies aimed at enhancing graduation rates and academic success within the NJCAA Division I context. Furthermore, the results contribute to the broader conversation on policy and student support practices, with potential applications in various educational settings.

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Predicting NJCAA Student-Athlete Success: An Analysis of Graduation over a 5-Year Period Using Precollege and College Variables at a 2-Year Institution

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Dedication

To my dear family, friends, and all who believed in me,

Embarking on this journey, one that took me across oceans from Europe, I always knew it was my destiny, but only when the timing was right did I fully embrace it. This path has been nothing short of extraordinary.

To the Library Buddies, who've become family in every sense but DNA, your camaraderie and support have been my sanctuary during times of doubt and a cause for celebration in moments of triumph. To the amazing Cohort 13—I couldn't have asked for a smarter, more compassionate group to share this experience with. To Lou, Randi and Kevin for facilitating the data collection; without it, this study would not have been possible.

To Mila, aka Bublik, my steadfast friend, thank you for believing in the process and humorously asking for the end date since Day One, even when hope seemed distant. To Candice, who not only proved that this dream was possible but also became Dr. Frazer in doing so. A shoutout to Rodica for the timely reminder that even superheroes take breaks.

To Marcin, my love, you are the endless well of inspiration and joy. Each hurdle we crossed turned into a stepping stone, thanks to you. To my family, your endless love and sacrifice have been the foundation of my journey. You gave me the courage to dream and the resilience to chase those dreams, regardless of the distance or challenges. Your belief in me has been my guiding light, illuminating my path even through sleepless nights.

Lastly, my heartfelt thanks to the chair, Dr. Stephen Draper, and committee member Dr. Byron Hargrove. Your insightful feedback, rigorous standards, and unwavering support have been crucial in bringing this dissertation to fruition. Dr. Hargrove, thank you for being the calm in the storm, for pushing me to strengthen and produce my best work, and for the advice, guidance, and encouragement you continue to provide. I hope that my work contributes meaningfully to the wealth of expertise in our field. The journey to this point has been transformative, and I am excited about the potential impact of my research.

Biographical Sketch

Alina Nazari is currently the Director of Operations and Accreditation at a private university in New York. Ms. Nazari attended the Academy of Economic Studies of Moldova and graduated with a bachelor's degree in international economic relations in 2008. She attended Monroe College and graduated with a Master of Business Administration, concentration in finance in 2011. She commenced matriculation at St. John Fisher University in the summer of 2021 and began doctoral studies in the EdD Program in Executive Leadership. Ms. Nazari pursued her research on the effects of precollege and college variables on the academic success of student-athletes at a community college, under the direction of Dr. Stephen Draper and Dr. Byron Hardgrove, and received the EdD degree in 2023.

Abstract

College student-athletes have to navigate unique challenges in order to graduate on time primarily due to their dual roles on campus (Beron & Piquero, 2016; Cooper et al., 2017). While previous research has primarily explored predictors of academic success (e.g., graduation within 150% of the standard completion time) among student-athletes at NCAA Division I institutions, this study addressed the significant gap in knowledge specific to NJCAA Division I student-athletes. This quantitative study extended the work of Autry (2010) by investigating the precollege and college predictors of academic success among 2-year student-athletes at a NJCAA Division I institution in the Midwest United States from 2013 to 2018. Similar to Autry (2010), the precollege predictors included high school grade point average (HSGPA), socioeconomic status (SES), first-generation status, race, and gender, while the college predictors encompassed residency status, athletic participation (team or individual), scholarship status, GPA for the first three semesters, major, Pell Grant eligibility, degree hours, and course withdrawals during the freshman year.

Using multivariate logistic regression analyses, the key findings identified key precollege variables such as gender, race, residency, first-generation status, Pell Grant eligibility, and HSGPA to impact NJCAA student-athletes' on-time graduation. Notably, the study revealed disparities in graduation rates based on gender and race, where female student-athletes and those with higher HSGPAs exhibited a higher likelihood of graduation, highlighting the pivotal role of precollege academic preparedness. Conversely, students from out-of-state or lower socioeconomic backgrounds, as inferred from Pell Grant eligibility, demonstrated a lower

probability of graduating. The study also identified the influence of academic factors such as chosen major, college GPA, and course withdrawal patterns on their likelihood of graduating, with particular sports showing a positive impact on graduation rates.

These findings hold significant implications for educators, administrators, and athletic programs, offering valuable insights to design targeted interventions and evidence-based strategies aimed at enhancing graduation rates and academic success within the NJCAA Division I context. Furthermore, the results contribute to the broader conversation on policy and student support practices, with potential applications in various educational settings.

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Chapter 1: Introduction

Higher education plays a crucial role in society, providing individuals with opportunities for personal growth, intellectual development, and career advancement. By offering specialized knowledge, critical thinking skills, and a platform for academic exploration, higher education institutions serve as catalysts for societal progress (Cabrera et al., 1993; Cipriano & Riccardi, 2016; Comeaux & Harrison, 2011; Perna & Thomas, 2006). According to the American Association of Colleges and Universities (AAC&U) (2023), the benefits of attending 4-year colleges and universities include advanced learning, exposure to comprehensive academic programs and industries, intellectual development, career preparation, personal growth, networking opportunities, exposure to diversity, and personal fulfillment. Higher education institutions offer a wide range of academic majors that foster intellectual curiosity and enhance critical thinking skills. They provide specialized knowledge, practical skills, and networking opportunities to prepare students for successful careers (Astin, 1993; Tinto, 1993).

The purpose of 2-year colleges, also known as community colleges or junior colleges, lies in their mission to provide accessible and affordable education to more diverse student populations (e.g., diversity with respect to age, job experience, academic ability, socioeconomic status (SES), and a wider range of academic ambitions). The benefits of attending a 2-year college include cost-effectiveness, smaller class sizes, personalized attention, flexible scheduling, and community engagement opportunities, enabling students to obtain a quality education, gain valuable skills, and enhance their career prospects (American Association of Community Colleges [AACC], 2017).

In addition, 2-year institutions offer comprehensive academic programs, vocational training, and transfer opportunities to 4-year institutions. In fact, the primary purpose of 2-year colleges is to prepare students for immediate entry into the workforce, equipping them with practical skills and industry certifications (Bahr, 2013). For those who want to pursue bachelor's degrees, community colleges serve as a stepping stone for students to pursue higher education by offering transfer programs that allow seamless progression to 4-year colleges or universities.

Despite the benefits of earning a college degree, many college students, regardless of their field of study, face various challenges that can affect their academic performance, such as personal issues, lack of academic preparedness, financial difficulties, social pressures, and inadequate support systems (Astin, 1993; Brecht, 2014; Kuh et al., 2006; Tinto, 1993). Additionally, systemic issues within educational institutions, such as limited resources, insufficient counseling services, and administrative barriers, can also contribute to the problem. These academic and personal challenges faced during college can impact students' ability to succeed (e.g., maintain a competitive grade point average (GPA), enjoy an engaging college experience, and graduate with a degree within the recommended timeframe) (Baker & Montalto, 2019; Hu & Kuh, 2002; Huml et al., 2019; McElveen & Ibele, 2019; Pascarella et al., 1996; Pascarella & Terenzini, 2005; Shulman & Bowen, 2001).

While the challenge of improving graduation rates remains complex, ongoing efforts to understand and address the underlying causes can lead to meaningful change. It is essential for administrators and stakeholders to continue their dedication to finding innovative solutions and implementing evidence-based practices that support student persistence and degree completion. Unfortunately, college students in the United States consistently graduate at different rates across the country. The standard timeframe used to assess graduation rates is typically within 6 years

for 4-year institutions and 3 years for 2-year institutions. It is important to note that graduation rates can vary significantly based on various factors, including the type of institution, student demographics, and the academic programs offered. These rates are often tracked and reported by educational institutions, government agencies, and research organizations to evaluate institutional effectiveness, identify areas for improvement, and inform policy decisions aimed at enhancing student success and completion (National Center for Education Statistics [NCES], 2001).

In the year 2020, data shows that 64% of students who started pursuing a bachelor's degree as first-time, full-time undergraduates at 4-year institutions in the fall of 2014 had successfully graduated within 6 years (Table 1.1). When breaking down these statistics further, 63% graduated from public institutions, 68% from private nonprofit institutions, and only 29% from private for-profit institutions. In addition, a gender disparity was apparent in these rates, with 60% of males graduating within 6 years compared to 67% of females. This gender gap was evident in both public (66% for females vs. 60% for males) and private nonprofit institutions (71% for females vs. 64% for males). Interestingly, at private for-profit schools, male students outperformed females with a rate of 31% versus 28% (NCES, n.d.).

Table 1.1

Graduation Rates At 4-Year Institutions, 2020 (2014 Entry Class)

Type	Graduated within 4 Years	Graduated within 5 Years	Graduated within 6 Years
Public	42%	59%	63%
Nonprofit	57%	65%	68%
For-Profit	23%	27%	29%
All School Types	47%	61%	64%

Note. National Center for Education Statistics. (n.d.). *Fast Facts: Undergraduate graduation rates* (40). https://nces.ed.gov/fastfacts/display.asp?id=40

Two-year institutions typically offer a variety of career-focused programs at both the certificate and associate degree levels, with an emphasis on equipping students for careers or enabling them to transfer to 4-year institutions. For students who started at 2-year degree-granting institutions in the fall of 2017 with the goal of obtaining a certificate or associate degree, around 34% achieved their academic goal in a time frame that's 150% of the standard duration (Table 1.2) (NCES, n.d.). From this same group, 14% transferred to another college within this extended timeframe, while 10% were still studying at their initial college. The rest, accounting for 42%, had either left their initial college without transferring or their status wasn't recorded as having transferred to a new institution.

Table 1.2

Graduation Rates at 2-Year Institutions, 2020 (2017 Entry Class)

Type	Graduated in 3 Years
Public	29%
Nonprofit	52%
For-Profit	62%
All School Types	34%

Note. National Center for Education Statistics. (n.d.). *Fast Facts: Undergraduate graduation rates* (40). https://nces.ed.gov/fastfacts/display.asp?id=40

The graduation rates for 2-year institutions are generally lower compared to 4-year institutions due to a combination of factors. The diverse student population, including non-traditional students and those seeking career-specific training, poses unique challenges in terms of academic preparedness and competing responsibilities. Open enrollment policies and the need for developmental coursework can extend the time needed to complete programs, thus affecting graduation rates (U.S. Department of Education, 2017). Additionally, students at 2-year institutions often have transfer-oriented goals rather than obtaining an associate degree. Financial constraints and the need to work while attending school also impact success.

To combat these challenges, community colleges tend to allocate more resources and personnel to comprehensive student support services, academic advising, financial aid resources, and strengthening transfer pathways to enhance student success and achieve educational goals at 2-year institutions (NCES, n.d.). Resolving the issue of low college graduation rates requires a multifaceted approach (Berger et al., 2012). It involves implementing comprehensive student support programs, enhancing financial aid opportunities, improving academic advising and counseling services, and addressing systemic barriers within educational institutions. Collaboration between administrators, faculty, staff, and students is crucial to identify and implement effective strategies that promote student success and increase graduation rates (Frost et al., 2010). Moreover, addressing this issue requires continuous evaluation and adaptation of interventions based on research and data analysis. By closely monitoring the outcomes of implemented initiatives, community colleges can gain insights into the effectiveness of their approaches and make necessary adjustments.

For decades, scholars have delved into identifying multifaceted predictors of academic success for both 2-year and 4-year college students in the US. Astin (1993) highlighted the beneficial effects of student involvement and active engagement in collegiate activities on academic outcomes. Building on this, Pascarella and Terenzini (2005) underscored the critical role of socioeconomic status (SES) in shaping student persistence and graduation trajectories. Further, Tinto (1993) illuminated the pivotal relationship between social integration and cultivating a sense of belonging, suggesting its profound influence on student retention and overall success. Kuh et al. (2010) offered evidence-based recommendations for creating supportive and engaging campus environments to enhance student success in college. Slanger et al. (2015) analyzed a decade's worth of College Student Inventory (CSI) data from a public

university and pinpointed influential factors on student graduation, encompassing secondary education performance, demographic traits, SES factors, integration within the college community, institutional backing, financial aid stipulations, and instructional quality. Similarly, Hightower (2016) investigated 4-year institutions in Georgia, emphasizing the importance of SAT scores, incoming freshmen's average high school grade point average (HSGPA), student-to-faculty ratios, and federal financial assistance in impacting graduation outcomes. Shaffer et al. (2015) underscored the significance of tailored student experiences, both academically and socially, in college success. Further enriching this discourse, various studies have spotlighted academic readiness (Adelman, 2006), family support (Lowe et al., 2018), campus environment (Hurtado, 1998), effective time management (Britton & Tesser, 1991), and the value of structured academic roadmaps offering coherent course progressions and transfer channels (Calcagno et al., 2007). These studies, among others, have contributed to the understanding of the multifaceted challenges faced by college students in their academic journey.

Despite extensive research and knowledge surrounding college graduation rates and student success, several areas remain unclear or pose ongoing challenges. These include understanding and addressing disparities in graduation rates among different student subpopulations based on key precollege demographics such as race, ethnicity, and SES status. There is still a need for a deeper understanding of the complex interplay between such precollege and college variables (e.g., race, gender, first-generation status, choice of major, scholarship type, HSGPA, SES, residency) and their specific impact on graduation rates. Additionally, there is a need for further investigation into the unique challenges and support needs of transfer students and non-traditional students. Long-term outcomes beyond degree attainment, such as employment rates and career advancement, also require examination. Lastly, there is a need for a

greater understanding of the graduation predictors of specific student subgroups, such as underrepresented minorities, first-generation students, low-income students, and student-athletes.

One unique student cohort that has gained significant research attention with respect to academic success over the last several decades has been Division I to Division III student-athletes at various institutions. Distinct from the typical college student, student-athletes navigate unique challenges due to their specialized roles on campus and are often considered a non-traditional student group. Their commitment to collegiate sports not only sets them apart but also intensifies their academic journey. Involvement in college sports demands significant time and energy, often seen as one of the most time-intensive campus activities (Beron & Piquero, 2016; Cooper et al., 2017; Paule & Gibson, 2010). Participating in collegiate sports has been identified as an additional challenge to academic success, as measured by cumulative GPA (Comeaux et al., 2014; Hazzaa et al., 2018; Hoffman et al., 2016; Milton et al., 2012; Rubin & Rosser, 2014). Balancing athletics and academics reshapes the college experience for these students (Comeaux, 2005; Huml et al., 2016; Sparkman et al., 2012). Numerous studies, including those by Bolen et al. (2013) and Harrell (2020), suggest that student-athletes tend to face more academic hurdles, and, in some cases, underperform compared to their non-athlete counterparts. Santos et al. (2020) discovered that student-athletes exhibited higher levels of time commitment, balancing both rigorous athletic training and demanding academic schedules. The role of student-athletes goes beyond balancing coursework and athletic commitments, presenting a range of benefits and challenges. Overall, being a student-athlete in college provides a platform for personal growth, academic pursuits, athletic development, and future opportunities in both academics and athletics (Harrison et al., 2013; National Junior College Athletic Association [NJCAA], n.d.). While they develop transferable skills and experience social integration, they often face challenges related to

time management, physical demands, mental health concerns, and the integration of their athletic and academic identities (Foster & Huml, 2017). Additionally, student-athletes experience increased pressure to perform academically due to eligibility requirements and scholarship obligations (Aquilina, 2013; Gaston-Gayles & Hu, 2009). The distinct circumstances of student-athletes demand tailored support services, including academic advising, tutoring, and resources that acknowledge and address their unique needs (Comeaux, 2013). Furthermore, upon graduation, collegiate athletes and non-athletes often compete for the same entry-level roles. Many of these positions prioritize academic skills, knowledge, and experiences over athletic achievements (Routon & Walker, 2014).

Recognizing the distinct challenges faced by student-athletes compared to the general student population is essential for institutions aiming to offer robust support. This support ensures that student-athletes thrive academically while managing their athletic responsibilities. Balancing rigorous training, competitions, travel, and academic demands places significant pressure on these individuals. They face challenges in managing time effectively to meet academic expectations while fulfilling athletic obligations (Robertson, 2019). Student-athletes who participate in college athletics in the United States must adhere to the rules and regulations set by the National College Athletic Association (NCAA) or other athletic governing bodies. These regulations may impact their eligibility, practice hours, and other aspects of their athletic and academic lives (Brown, 2021). Student-athletes require additional support to manage their academic workload, especially when they have to miss classes due to competitions or travel. They may rely on academic advisors, tutoring services, or flexible scheduling options to maintain their academic progress (Hoffman, 2019). Borak et al. (2022) revealed that student-athletes struggle with integrating their athletic identity with their academic and personal

identities. Balancing the expectations and pressures from both domains and finding a sense of belonging in each can be challenging. Student-athletes often face decisions regarding their athletic career trajectory, such as pursuing professional sports or transitioning into other career paths after college. These choices can influence their academic choices, internships, and job preparations (McClellan et al., 2016). Thus, it is important to recognize that the experiences and challenges of student-athletes and non-student-athletes can vary based on individual circumstances, sport type, division level, and personal goals. The support systems and resources available to student-athletes within their educational institutions can also play a significant role in helping student-athletes navigate their academic and personal challenges, as well as the regulations handed down by the NCAA or NJCAA.

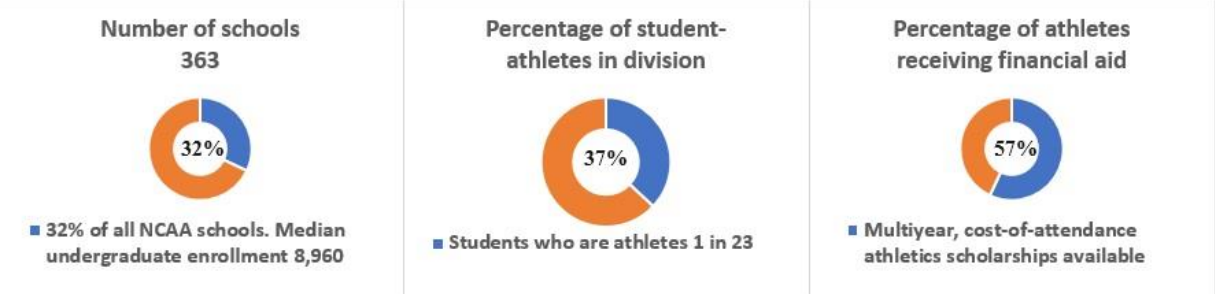
Founded in 1906, the NCAA (2022) is the largest and most influential governing body for college and university athletics in the United States. Its founding was a response to concerns about the safety and fairness of intercollegiate sports. The NCAA is a nonprofit organization that sets rules and regulations for intercollegiate sports and oversees athletic programs at more than 1,200 member institutions. The NCAA is responsible for organizing and conducting national championships in various sports across different divisions, ensuring fairness, competitive balance, and the welfare of student-athletes. The association also promotes academic success, ethical conduct, and the overall well-being of student-athletes by implementing eligibility requirements, academic standards, and support programs. The NCAA plays a significant role in shaping the landscape of college sports and fostering a balance between athletic competition and academic pursuits.

The NCAA organizes its member institutions into three main divisions based on factors such as size, resources, and athletic programs. These divisions are Division I, Division II, and

Division III. Division I is the highest level of competition in the NCAA. It includes large universities with extensive athletic programs and significant financial resources. Division I schools often offer a wide range of sports and have a strong emphasis on athletics, including high-profile sports such as football and basketball. They typically provide substantial athletic scholarships and academic support services, such as tutoring, study halls, and academic advising, to student-athletes and have rigorous recruiting processes. Division I schools compete for national championships and often receive significant media coverage (Figure 1.1).

Figure 1.1

Enrollment Characteristics of Division I Student-Athletes in the US

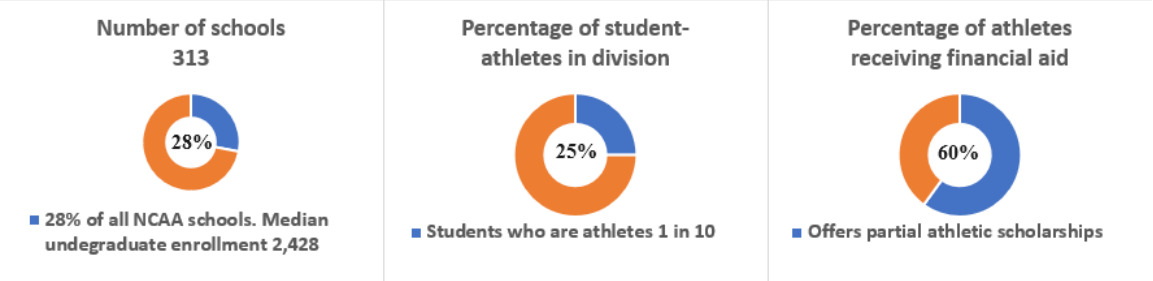


Note. Adapted from "The College Divisions Explained (D1 vs. D2 vs. D3)," by NCSA, 2023. https://www.ncsasports.org/recruiting/how-to-get-recruited/college-divisions

Division II institutions are generally smaller and prioritize a holistic student-athlete experience, striving for equilibrium between academics and athletics. While their financial resources might not match Division I, they maintain diverse sports programs. Athletic scholarships are available, though fewer are full rides compared to Division I. The level of competition is slightly lower than in Division I, but many Division II athletes still excel in their respective sports (Figure 1.2).

Figure 1.2

Enrollment Characteristics of Division II Student-Athletes in the US

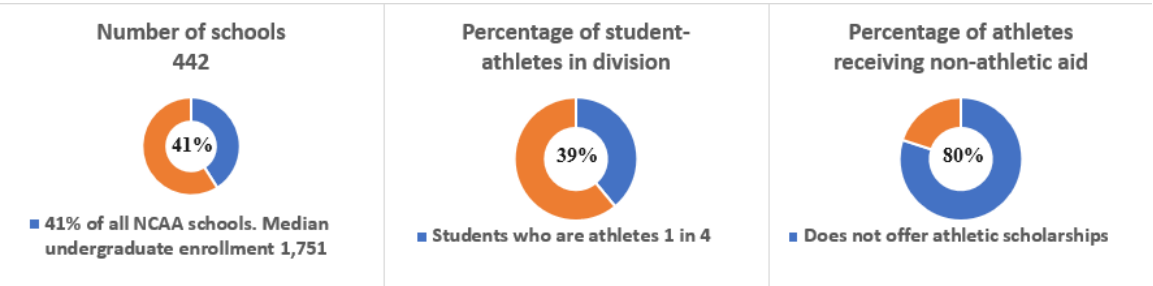


Note. Adapted from "The College Divisions Explained (D1 vs. D2 vs. D3),' by NCSA, 2023. https://www.ncsasports.org/recruiting/how-to-get-recruited/college-divisions.

Division III schools prioritize the integration of athletics into the overall educational experience. They emphasize the student-athlete's academic pursuits and personal development, placing minimal emphasis on athletics as a separate entity. Without offering athletic scholarships, they admit student-athletes mainly based on academic criteria. The program's emphasis is placed on the joy of the sport and cultivating life skills like teamwork, leadership, and time management.

Figure 1.3

Enrollment Characteristics of Division III Student-Athletes in the US



Note. Adapted from "The College Divisions Explained (D1 vs. D2 vs. D3),'' by NCSA, 2023. https://www.ncsasports.org/recruiting/how-to-get-recruited/college-divisions

The competition level is generally lower than in Division I and Division II, but there are still highly competitive athletes and teams in Division III. Student-athletes in Division III engage in a wide range of sports while maintaining a strong focus on academics (Figure 1.3).
Each division has its own set of rules and regulations regarding eligibility, scholarships, and competition. The divisions provide opportunities for student-athletes with varying skill levels and priorities to participate in college sports and pursue their athletic and academic goals.

In addition to the NCAA, there are several other prominent athletic associations and organizations in the United States that govern and oversee college sports: NJCAA, National Association of Intercollegiate Athletics (NAIA), National Christian College Athletic Association (NCCAA), and United States Collegiate Athletic Association (USCAA). These associations, along with other regional and conference-specific organizations, play important roles in governing and organizing college sports, providing opportunities for student-athletes to compete, and ensuring the fair and ethical conduct of athletic programs.

While the NCAA was established in 1906, the rise in popularity of junior college (or community college) athletics occurred in the 1930s. This was prompted by the founding of the NJCAA when the NCAA rejected the petitions of 13 junior colleges to compete in their track and field championships (NJCAA, n.d.c.). The NJCAA conducted its first championship in May of 1939, initially focusing on track and field and later expanding to include 29 different sports (14 men's sports and 15 women's sports) across 44 states. While the NCAA and the NJCAA are both organizations that oversee intercollegiate athletic competitions in the United States, there are some key differences between the two organizations.

One of the most significant differences between the NCAA and NJCAA is the level of competition they oversee. The NCAA is responsible for overseeing athletic competition at the 4-

year college and university level, while the NJCAA oversees athletic competition at the 2-year college level. Another difference between the NCAA and NJCAA is the number of member institutions. The NCAA has over 1,100 member institutions, while the NJCAA has over 500 member institutions. The rules and regulations governing athletic competition also differ between the two organizations. The NCAA has strict rules and regulations regarding eligibility, recruiting, and scholarship allocation, while the NJCAA has more flexible rules and regulations in these areas.

In terms of athletic offerings, the NCAA oversees 24 sports, while the NJCAA oversees 29 sports. Finally, the NCAA and NJCAA also differ in terms of their focus on academic success. While both organizations place a strong emphasis on academic success, the NCAA has stricter academic eligibility requirements for student-athletes and places a greater emphasis on academic success as a key component of the student-athlete experience. Overall, while the NCAA and NJCAA share some similarities, there are significant differences in the level of competition, number of member institutions, rules and regulations, athletic offerings, and emphasis on academic success.

Graduation rates for student-athletes refer to the percentage of student-athletes who successfully complete their degree requirements within a specified period of time (NCAA, 2022). It measures the proportion of student-athletes who graduate from their respective academic programs while actively participating in their athletic pursuits. Graduation rates provide a quantitative measure of the educational attainment and success of student-athletes, reflecting their ability to balance the demands of their athletic commitments with their academic responsibilities. These rates are typically calculated by tracking cohorts of student-athletes over a specific period, such as 3, 4, 5, or 6 years, and comparing the number of graduates to the total

number of student-athletes in the cohort. Graduation rates are used as a key indicator to assess the effectiveness of academic support programs, institutional policies, and athletic eligibility requirements in supporting the educational goals and outcomes of student-athletes. The NCAA and the federal government calculate graduation rates for student-athletes differently. The NCAA's calculation focuses on a 6-year time frame, tracking those who initially enroll as full-time freshmen on athletic aid. It allows adjustments for transfers and professional pursuits. In contrast, the federal government's calculation varies by program and may consider both 4 and 6-year rates, potentially including different student cohorts.

Graduation rates for student-athletes at NCAA institutions vary based on division, sport, and the specific school. The NCAA measures these rates using two metrics: the graduation success rate (GSR) and the federal graduation rate (FGR). The GSR accounts for student-athletes transferring in good academic standing, while the FGR doesn't include transfers. Notably, these rates can vary across sports and demographic categories.

According to the NCAA's (2023) latest data, the overall GSR for Division I student-athletes who entered college in 2013 was 89% (Table 1.3). Division II student-athletes who entered college in 2013 had an overall GSR of 76% (Table 1.4). For Division III, the NCAA does not calculate GSR as it is primarily based on athletic participation rather than athletic scholarships (NCAA, 2022). Graduation rates can differ significantly across individual institutions and sports. Some sports may have higher graduation rates than others due to various factors such as academic support programs, institutional resources, and the nature of the sport itself. Additionally, graduation rates may also differ among different demographic groups, such as gender and race/ethnicity.

Table 1.3

Graduation Rates of 2019–2022 D1 Student-Athletes and Non-Student-Athletes by Gender (2013–16 Entering Cohorts)

	Student-Athletes		Student Body
	GSR	Federal Rate	Federal Rate
D1 Overall	89%	69%	69%
D1 Men	85%	62%	66%
D1 Women	95%	75%	71%

Note. GSR = graduation success rate. NCAA. (2023b). Trends in NCAA Division I graduation rates. https://ncaaorg.s3.amazonaws.com/research/gradrates/2022/2022D1RES_GSRTrends.pdf

Table 1.4

Graduation Rates of 2019–2022 Division II Student-Athletes and Non-Student-Athletes by Gender (2013–16 Entering Cohorts)

	Student-Athletes		Student Body
	ASR	Federal Rate	Federal Rate
D2 Overall	76%	60%	52%
D2 Men	69%	53%	47%
D2 Women	88%	69%	56%

Note. ASR = academic success rate. NCAA. (2023c). Trends in NCAA Division II graduation rates. https://ncaaorg.s3.amazonaws.com/research/gradrates/2022/2022D2RES_ASRTrends.pdf

Problem Statement

The NJCAA, which primarily focuses on 2-year colleges, does not offer centralized reports on graduation rates for student-athletes at its member institutions, unlike the NCAA, which regularly publishes such data. The NJCAA's emphasis is on providing opportunities for student-athletes to compete at the junior college level. The primary reason the NJCAA may not

report comprehensive graduation rates like the NCAA is due to differences in resources and institutional structures. NJCAA member institutions operate with a significant degree of autonomy. Each college within the NJCAA has its own administration, policies, and procedures. This decentralized structure makes it challenging to standardize data collection and reporting across all NJCAA institutions. As a result, the NJCAA does not have a centralized system for collecting and reporting graduation rates. The NJCAA primarily serves as a pathway for student-athletes to transition from high school to 4-year colleges or universities. As such, the focus of the NJCAA is often on providing opportunities for athletic and academic development during the initial 2-year college experience. While some NJCAA institutions may track and report graduation rates internally, the emphasis may be more on facilitating successful transfers to 4-year institutions rather than reporting specific graduation data.

While graduation rates for student-athletes can vary based on division level and sport, the NCAA reports relatively high graduation rates across divisions, and NJCAA graduation rates are not known. It is important to note that graduation rates at 2-year colleges, including NJCAA institutions, can vary widely due to factors such as the diverse student population, transfer patterns, and varying academic programs offered. However, it is crucial for institutions to continue providing comprehensive support systems to enhance the academic and athletic success of student-athletes and promote their overall well-being. During the 2021-2022 academic year, there were 1.7 million full-time students enrolled within the community college system (AACC, 2023), and approximately 65,000 student-athletes competed in the NJCAA across 29 sports. It is essential to examine the relationship between student-athletes' academics, athletics, and overall integration within the community college. This study is designed to investigate which precollege and college variables are significant predictors of community college student-athlete academic

success (i.e., the ability to graduate within 150% of the "normal" completion time: 3 years for an associate degree) at an NJCAA Division I Midwestern United States institution from 2013 to 2018.

Research indicates that community colleges offer a promising avenue for individuals, especially those from low-income and ethnic minority backgrounds, who wish to pursue college athletics after high school (Horton, 2015; Mendoza et al., 2012). Mendoza et al. (2012) suggested that "athletic programs often serve as the primary motivation for many individuals to pursue higher education, especially prospective students from low-income and ethnic minority backgrounds" (p. 202). As Mendoza et al. (2012) indicated, participation in athletics often serves as a deciding factor for numerous potential students in choosing to attend a community college instead of foregoing college altogether. However, there has been little research exploring or discussing the academic development of student-athletes within the community college environment. Several factors traditionally linked to student-athlete persistence at NCAA institutions might also be significant for student-athletes at community colleges. Academic preparedness, as indicated by HSGPA, consistently emerges as a predictor of college success across different institutional types (Bailey et al., 2010; Pascarella & Terenzini, 2005). Furthermore, the enrollment status, whether part-time or full-time, assumes considerable importance in the context of community colleges, given the demographic composition and unique challenges these students often encounter (Hagedorn et al., 2001). The financial landscape, shaped differently than NCAA institutions due to varied scholarship structures and constraints, also holds sway in the community college environment (Dowd & Coury, 2006). Notably, the emphasis on effective degree and career counseling becomes paramount, especially as a significant proportion of community college students either target specific vocational skills

or envision transitioning to 4-year institutions (Karp et al., 2008). While some factors from NCAA settings may resonate, the experiences of NJCAA community college student-athletes are couched in a distinctive academic and socioeconomic backdrop, demanding a nuanced understanding of their persistence factors.

Precollege variables, such as HSGPA, standardized test scores, and SES background, have been identified as influential factors in student-athlete success at NCAA 4-year institutions (Comeaux et al., 2011; Harrison et al., 2018; Graham, 2020; Miller & Weiss, 2022; Pascarella & Terenzini, 2005). Higher academic preparedness and stronger SES support have shown positive correlations with graduation rates (Autry, 2010; Chen, 2012; Hodes et al., 2015; Shiring, 2020; Slanger et al., 2015). However, the specific relationship between these precollege variables and graduation rates for student-athletes across different types of institutions requires further investigation. The literature time and again lacks an intersectional perspective, failing to examine how multiple identities, such as race, gender, SES status, choice of major, and scholarship status, interact and influence student-athlete academic success at NJCAA 2-year institutions. Within the college context, both two- and 4-year, variables such as academic engagement, campus involvement, academic support services, and coach-athlete relationships have been found to influence graduation rates. Student-athletes who actively engage in their academic pursuits, take advantage of support services, and have positive relationships with coaches and mentors tend to have higher graduation rates. However, the extent to which these variables impact graduation rates may vary across different types of institutions, such as NCAA Division I, Division II, Division III, or NJCAA.

Brecht and Burnett (2019) contend that researchers have yet to reach a consensus on the precise variables that predict or guarantee student-athlete academic success at 4-year institutions.

Hodes et al. (2015) emphasized the importance of higher education institutions adopting an interdisciplinary approach to cater to the academic needs of 4-year student-athletes. Such an approach would necessitate a collaborative effort among academic advisors, coaches, and other supportive staff, offering a range of academic support services like tutoring, study skill workshops, and time management courses (Glaza, 2023; Johnson, 2013; Robertson et al., 2019). While there is a vast array of research on student-athlete academic success in NCAA institutions, there's a noticeable gap in studies centered on NJCAA Division I institutions (Brown, 2021).

The NJCAA Division I level holds particular significance when studying the academic success of student-athletes due to several characteristics. NJCAA Division I institutions are 2-year community colleges that offer competitive athletic programs, providing a unique environment for student-athletes to balance their athletic commitments with their academic responsibilities (Tobenkin & Tobenkin, 2022). NJCAA Division I institutions often serve as a transitional phase for student-athletes before transferring to 4-year colleges or universities (NJCAA, n.d.-a). This transitional nature presents distinct challenges and opportunities for student-athletes as they navigate the academic and athletic demands while preparing for their next educational and athletic endeavors (Tobenkin & Tobenkin, 2022).

Moreover, the NJCAA Division I level attracts a diverse range of student-athletes, including those who may have chosen community college for various reasons, such as financial considerations or the need for academic support (Ma & Baum, 2016). This diversity in student demographics, academic backgrounds, and athletic abilities adds complexity to understanding the factors that influence academic success among NJCAA Division I student-athletes (Horton, 2015). By filling this research gap, this study will provide valuable insights into the unique challenges and opportunities faced by student-athletes in this specific context of an NJCAA

Division I institution. Collegiate athletics continue to evolve, with increasing demands on student-athletes both athletically and academically. As expectations and pressures rise, it is essential to examine the factors that contribute to academic success among student-athletes to ensure they receive the necessary support and resources. By investigating the effects of precollege and college variables on the academic success of NJCAA student-athletes, this research aims to provide valuable insights into the factors that contribute to their achievements. Ultimately, the findings will help inform policies and practices that support Nstudent-athletes in balancing their athletic commitments with their academic pursuits, leading to improved overall success and well-being.

One of the best graduate rate prediction studies with student-athletes to build upon was published by Autry (2010). Autry (2010) empirically tested the relationship between NCAA student-athlete GPAs and select precollege demographic variables (gender, race, residency, SES, HSGPA, and standardized test-score) and select college variables (classification, athletic scholarship status, participation in an individual or team sport, major, cumber of degree credits, number of withdrawals, and participation in a summer bridge program) at an NCAA Division II university. Autry (2010) aimed to predict student-athlete success, with the dependent variable being graduation over a 3-year time frame (e.g., 2000-2003). Through employing binary logistic regression, Autry (2010) unveiled significant findings related to student-athletes' academic performance. There was a notable negative relationship between gender and GPA, meaning female student-athletes generally attained higher GPAs, graduating at rates exceeding their male counterparts by over 11%. A positive relationship was discovered between race and GPA, with White student-athletes achieving graduation at a superior rate compared to non-White counterparts. Sport type also showed a positive correlation with GPA, indicating that

participation in low-revenue sports was linked to higher graduation rates compared to high-revenue sports. In fact, student-athletes engaged in golf showed statistically significant graduation prediction rates. Although not reaching the traditional significance threshold, non-revenue sports like volleyball, cross country, and track and field exhibited trends approaching significance (p = 0.068, 0.147, and 0.155, respectively). SES also wielded a significant impact on student-athlete success at the institution under study. Disturbingly, 44.04% of student-athletes eligible for Pell Grants did not complete their degree programs. Finally, Autry (2010) provided models highlighting that residency, SES, sport type, major, college GPA, and the number of degree hours taken each semester all played statistically significant roles in predicting the academic success of student-athletes at this NCAA Division II institution. One notable limitation of the study conducted by Autry (2010) is that it focused solely on data from one 4-year institution, and it did not account for transfer student-athletes. As a result, the findings may not be fully representative of student-athlete success across all types of institutions. Each institution has its unique student body, academic programs, and support services, which can significantly impact student-athlete outcomes. Moreover, the study only considered selected precollege and college experience variables, focusing on the impact of the first year of college variables on student-athlete success. Autry (2010) suggested further research could expand the scope to include other factors and the impact of transfers on graduation rates. Additionally, the study did not compare the dataset of student-athletes to their non-athlete peers at the university. This comparison could help identify if the factors influencing student-athlete success differ from those affecting the general student population. Future studies comparing athletes at different types of institutions who receive different levels of athletic scholarships (i.e., partial versus full scholarship), SES as determined by PELL Grant eligibility, could further contribute to

developing more effective strategies to promote student-athlete success and academic achievement.

To date, there have been no studies that have replicated the work done by Autry (2010) for NJCAA student-athletes. Despite the numerous benefits of participating in college athletics, student-athlete success and graduation rates remain a significant concern, particularly within the NJCAA and 2-year institutions, which play a vital role in providing access to higher education for a diverse range of students, including many student-athletes. Understanding the unique challenges and barriers they face in these institutions can help develop targeted interventions and support systems to improve their academic success and graduation rates. The success of student-athletes is not solely defined by their athletic achievements but also by their academic progress and degree completion. Recognizing the importance of a well-rounded education, researchers and institutions are interested in identifying the factors that positively impact the academic success and graduation rates of student-athletes at the 2-year college level. Studying the experiences of NJCAA 2-year college athletes will contribute to a broader understanding of student-athlete development and success in higher education. By examining the specific challenges and opportunities faced by these athletes, researchers can inform policies, programs, and practices that enhance their overall collegiate experience and set them on a path toward long-term success.

Therefore, this quantitative research seeks to build upon the research by Autry (2010) to determine if certain select precollege variables (e.g., HSGPA, gender, race, SES, and first-generation status) and college variables (e.g., residency status, athletic participation in a team or individual sport, scholarship status, GPA for each of the first three semesters, major, number of degree hours for each of the first three semesters, and number of withdrawals for each of the first

three semesters) also predict the academic success of NJCAA Division I student-athletes attending 2-year community colleges, as measured by graduation within 150% of the "normal" completion time. While these success factors are well-documented for NCAA athletes, it is important to conduct a separate study focusing on NJCAA student-athletes to determine if these factors translate similarly to the NJCAA context. The study on the effects of precollege and college variables on the graduation of NJCAA Division I student-athletes can help identify the specific success factors that are relevant to NJCAA student-athletes. In addition to considering the generalizability of the findings to other institutions, it is crucial to highlight the equity and social justice contribution of this research, particularly concerning a marginalized population attending NJCAA 2-yar community colleges. While the factors influencing the academic success of NCAA Division I athletes are well-documented, there is a gap in knowledge concerning NJCAA student-athletes. Conducting a separate study focused on NJCAA student-athletes will help determine if the identified success factors translate similarly to the NJCAA context, which may differ significantly from the NCAA environment.

By exploring the effects of precollege and college variables on the graduation of NJCAA Division I student-athletes, this study can shed light on the specific success factors that are relevant to this population. Identifying these factors is essential for devising targeted interventions and support programs aimed at improving the academic outcomes of student-athletes in the unique educational setting of NJCAA institutions.

Moreover, this research will contribute valuable insights to the broader literature on the academic success of student-athletes, particularly those enrolled in 2-year institutions, which is an understudied area of inquiry. Understanding the challenges and opportunities faced by NJCAA student-athletes will aid in creating more inclusive and equitable practices to support

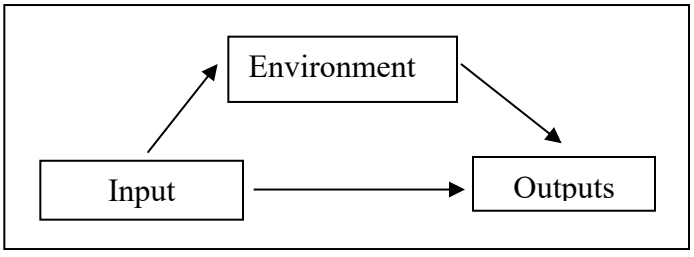
their academic and athletic pursuits, promoting social justice in the realm of collegiate athletics. By recognizing and addressing the specific needs of this marginalized population, higher education institutions can work towards fostering an environment that nurtures the academic and personal development of all student-athletes, regardless of their educational setting.

Theoretical Rationale

This study is anchored in two key conceptual frameworks: Astin's input-environment-output (I-E-O) model and social identity theory (Tajfel & Turner, 1979). Astin's I-E-O model suggests that student outcomes are shaped by the interplay between their personal attributes and precollege experiences (inputs) and their engagement within the college setting (environment). Within this context, the primary outcome under examination is the 3-year graduation rate of student-athletes. Figure 1.4 illustrates a graphical representation of the I-E-O model, which serves as a simple yet robust framework for the design of assessment. The precollege demographic and academic variables, such as HSGPA, gender, race, SES, and first-generation status, serve as the input factors. The college experience variables, including residency status, athletic participation in a team or individual sport, scholarship status, GPA for each of the first three semesters, major, number of degree hours for each of the first three semesters, and number of withdrawals for each of the first three semesters, constitute the environmental factors.

Figure 1.4.

Conceptual Model for Student Success



Note. Adapted from *Assessment for Excellence* by Alexander Astin, 1991, p. 18. Copyright 1991 by the American Council on Education/Macmillan.

Social identity theory, developed by Tajfel and Turner (1979), postulates that individuals derive part of their self-concept and self-esteem from their membership in social groups. In the context of student-athletes, their social identity is closely tied to their athletic team and sports affiliation. This theory suggests that the sense of belonging and identification with a particular athletic group can influence their academic success and retention. In the context of student-athletes, their identity as athletes can influence their academic success. According to social identity theory, if being a successful athlete is an important part of their identity, they may prioritize their athletic performance over their academic performance (Yukhymenko-Lescroart et al., 2022).

Combining these two conceptual frameworks, the study sought to explore how precollege demographic and academic factors (input) and the college experience variables (environment) interact to predict the graduation success (output) of student-athletes. The I-E-O model helps in understanding the various factors that may influence student-athlete success, while social identity theory contributes to examining the impact of the athletes' social identification with their teams on their academic outcomes.

The research investigated how these factors interplay and contribute to the academic success of student-athletes, specifically those enrolled in a NJCAA Division I institution. By adopting a theoretical framework that integrates both Astin's I-E-O model and social identity theory, this study aimed to provide a comprehensive understanding of the predictors of academic achievement and graduation among NJCAA student-athletes. Moreover, this theoretical rationale will help guide the development of targeted interventions and support programs to enhance the academic outcomes of this unique and marginalized population attending community colleges.

Statement of Purpose

The purpose of this quantitative archival study was to predict the associate degree graduate rates over a 5-year period (2013-2018) using a select group of previously established precollege demographics (i.e., gender, race or ethnicity, residency, SES, status as a first-generation college student) and select college experience variables (i.e., sport, college GPA per semester freshman year, major, number of completed credits each term, number of withdrawals per semester, full or partial scholarship status) for NJCAA Division I student-athletes enrolled at a community college in the Midwest United States. Academic success is defined using the national standard of 150% of the "normal" completion time. For this study, it was 3 years. Given the limited research available on NJCAA Division I institutions, further research on student-athletes is needed to better understand the variables that impact their academic success.

Research Questions

This study aimed to assess how precollege and college experiences predict the academic success of student-athletes at a Midwest NJCAA Division I institution between 2013 and 2018. The following research questions were addressed:

R1: Which precollege demographic variables (gender, race or ethnicity, residency, SES, and first-generation status) significantly predict the 3-year associate degree graduation rates of NJCAA student-athletes?

R2: Which college experience variable (type of sport, college GPA per semester freshman year, major, number of completed credits each term, number of withdrawals per semester, and full or partial scholarship status) significantly predicts the 3-year associate degree graduation rates of NJCAA student-athletes?

Some potential limitations in this quantitative study include limited generalizability to other regions or divisions, the exclusion of certain variables that could influence student-athlete success, reliance on secondary data with concomitant limitations, the inability to establish causation, the possibility of unaccounted confounding variables, and the challenge of tracking long-term attrition.

Potential Significance of the Study

There is a growing recognition of the importance of student success and degree completion in higher education. Administrators, policymakers, and educational institutions are increasingly focused on improving graduation rates and ensuring that students have the support they need to succeed. The unique challenges faced by NJCAA 2-year student-athletes make this research particularly relevant. These students navigate the demands of their athletic commitments alongside their academic responsibilities, often in a time-constrained and competitive environment. Understanding the factors that impact their graduation rates can help administrators develop targeted interventions and support systems to address the specific needs of this student population. The findings from this study can inform the development and implementation of evidence-based strategies aimed at improving graduation rates for NJCAA 2-year student-athletes. By identifying the precollege and college variables that have the greatest impact on academic success, administrators can design interventions that specifically target these areas. Administrators can use this research to advocate for resources and support systems tailored to the unique needs of NJCAA 2-year student-athletes. By presenting compelling data on the factors influencing graduation rates, administrators can make a case for increased funding, staffing, and programmatic enhancements that directly address the identified variables. The

present study seeks to build upon the existing body of research about NCAA Division I, II, and III student-athletes, as well as to guide future research on similar topics.

Definitions of Terms

The following terms used in this study are defined to ensure clarity and avoid potential misunderstandings.

Collegiate student-athlete: A student enrolled at an academic institution who actively competes on either the varsity or junior varsity athletic squads of that institution.

Academic success: Defined as graduation within 150% of the "normal" completion time. Cumulative GPA will serve as the dependent variable in measuring the academic success of student-athletes. Drawing from Astin's (1993) work, GPA stands recognized as a significant indicator of academic accomplishment.

Eligibility: “In order to participate, a student-athlete must meet entrance eligibility requirements, enrollment requirements, and accumulation requirements, or meet qualifications for limited exceptions” (NJCAA Eligibility Handbook, 2023, p. 9).

Graduation: The ultimate indicator of academic success. It was quantified based on a 3-year rate, concluding at the termination of the summer 2018 semester.

Precollege variables: Characteristics possessed by a student-athlete prior to collegiate enrollment. These variables align with Astin’s (1991) exploration of input, environment, and outcome determinants. The variables in this study included:

- Gender
- Race or ethnicity
- HSGPA
- Residency

- Pell Grant eligibility
- First-generation college student

College experience variables: Attributes and experiences a student-athlete accumulates during their collegiate tenure, consistent with Astin's (1991) framework of input, environment, and outcome determinants. College experience variables in this study included:

- Cumulative GPA each term enrolled freshman year
- Academic major
- Sport type
- Number of total credits each semester freshman year
- Number of course withdrawals (W) each semester freshman year
- Financial aid (full or partial athletic scholarship)

Cumulative GPA: This metric offers a quantitative snapshot of a student's cumulative academic performance within a given educational institution. By attributing numerical values to respective letter grades acquired in each course (e.g., A=4, B=3, C=2, D=1, F=0) and subsequently computing the average of these values across all undertaken courses, the cumulative GPA is derived, typically fluctuating on a scale from 0.0 to 4.0**.**

Gender: Refers to the classification of the student-athlete as either male or female.

National Junior Collegiate Athletic Association (NJCAA): "NJCAA is the governing association of community college, state college and junior college athletics throughout the United States" (NJCAA, 2023, para. 1).

Race: "A person's self-identification with one or more social groups. On census surveys, an individual can report as White, Black or African American, Asian, American Indian and Alaska

Native, Native Hawaiian and Other Pacific Islander, or some other race. Additionally, respondents may report multiple races." (U.S. Census Bureau, 2020, para. 2).

Scholarship student-athlete: An individual who competes in college-level sports and is granted financial support, often as an athletic scholarship, to offset part or all of their academic-related expenses. This financial assistance typically encompasses tuition, fees, books, and room and board (NJCAA, n.d.-b).

Sport type: Refers to the classification of a student-athlete's participation, which can fall into either team-based or individual-centric sports (Rubin, 2012).

Student-athlete refers to an individual who participates in both academic studies and athletic activities at an educational institution. The term "student-athlete" emphasizes the dual role and the importance of academic success alongside athletic achievement (Brecht, 2014).

Chapter Summary

The purpose of this study was to investigate the factors influencing the academic success of student-athletes in completing their degree within a 3-year timeframe at a NJCAA Division I institution during the period from 2013 to 2018. The study was conducted through the lens of social identity theory (Tajfel & Turner, 1979), which suggests that individuals develop their identity through social groups and that this identity can influence their behavior and performance. Additionally, Astin's I-E-O model (1991) served as the conceptual framework for the study, which emphasizes the interplay between input (student characteristics and precollege experiences), environment (college experiences and support structures), and output (academic and personal development outcomes) factors in shaping academic success.

Chapter 2 reviews the literature and explores the factors influencing student-athletes' academic performance, primarily measured by their GPA. This review synthesizes past research

findings, focusing on determinants of academic success for student-athletes such as gender, race, athletic scholarship status, and type of sport participation. Chapter 3 outlines the research methodology, detailing data sources, variables, statistical frameworks, and data analysis approaches. In essence, this study seeks to enhance our understanding of the variables driving student-athlete's academic accomplishments, aiming to shape strategies that strengthen their academic outcomes. Chapter 4 presents the findings of the study and Chapter 5 discusses the findings and offers recommendations for future research in this line of inquiry.

Chapter 2: Review of the Literature

Introduction and Purpose

In contemporary higher education, the measurement of student academic success has evolved beyond traditional academic performance indicators to include various outcomes that reflect a student's holistic development and achievement. One significant benchmark of success in higher education is the timely attainment of a degree within 150% of the “normal” completion time - 3 years for an associate degree and 6 years for a bachelor’s degree (Ober et al., 2018). The 3-year and 6-year graduation rate has emerged as a vital metric in assessing institutional effectiveness and student progress. Consequently, understanding the factors that influence student academic success, specifically in terms of timely graduation, has become a critical area of research within the field of higher education (Chronicle of Higher Education, 2015).

According to Brecht and Burnett (2019), graduating from a community college in 150% of the “normal” completion (i.e., a 3-year timeframe) is a widely accepted indicator of student achievement in higher education. This metric acknowledges that individual circumstances and institutional factors can influence a student's academic trajectory, and it recognizes the importance of supporting students throughout their entire educational journey. Several studies have investigated the factors that contribute to or hinder timely graduation, providing valuable insights into the complex dynamics that influence student success (Adelman, 2006; Kuh, 2007; Le Crom et al., 2009; Pascarella & Terenzini, 2015; Tinto, 1987).

Research suggests that several precollege variables influence students' likelihood of graduating within 150% of the typical completion time. Kuh et al. (2006) stated:

> Enrollment choices, academic preparation, aptitude and college readiness, support from family and peers, motivation to learn, and demographics such as race, gender, and SES status are among the factors associated with college success. (p. 17)

Jones et al. (2019) conducted a longitudinal analysis of a cohort of students and found that academic preparedness, including HSGPA and standardized test scores, significantly affects graduation rates. Additionally, SES background and access to financial aid have been identified as influential factors in student persistence and degree completion (Pascarella & Terenzini, 2005).

Besides precollege factors, certain college experience variables significantly predict success for college students. Institutional characteristics and support services play a crucial role in promoting timely graduation. Perkins-Holtsclaw (2018) found that institutional resources, such as academic advising, mentoring programs, and career services, positively impact graduation rates. On the other hand, challenges such as course availability, administrative barriers, and lack of support systems can impede student progress toward graduation (Jenkins & Fink, 2016; Toutkoushian & Smart, 2001).

The academic success of student-athletes at various levels has also been investigated by numerous researchers over the decades. Athletics have historically transformed, becoming an integral component of higher education. As highlighted by Kamusoko and Pemberton (2013), college sports have transitioned from student-initiated athletic groups to structured intercollegiate programs affiliated with renowned sports governance entities like the NCAA, NAIA, and NJCAA. Within academia, athletics serve multifaceted roles, from student recruitment and character development to institutional promotion, fostering community engagement, and bolstering school spirit. Nevertheless, it is imperative to recognize the unintended drawbacks

linked with athletic participation, notably its correlation with lower levels of graduation. The substantial time obligations required for practice sessions, competitive matches, and related travel can unintentionally compromise crucial study time and regular class attendance, both of which are vital for academic success (Aditomo, 2015; Brecht, 2014; Comeaux, 2005; Routon & Walker, 2014).

A literature review spanning the last 20 years reveals that while most studies focus on the persistence and graduation of general student populations and on the student-athletes that attend NCAA 4-year institutions, very few studies have examined the graduation rates of NJCAA or community college student-athletes in order to determine their reasons for remaining at or leaving the institutions they attend (Kuh, 2007; Le Crom et al., 2009; Miller & Weiss, 2022). This lack of research on this special subpopulation of student-athletes highlights the critical need for conducting further investigation in this area. Building on the work done by Autry (2010), the purpose of this quantitative archival study is to retrospectively predict the associate degree graduate rates over a 5-year period (2013-2018) using precollege demographics and college experience variables for NJCAA student-athletes.

Therefore, the purpose of this chapter is to review the literature on significant demographic and college experience predictors of student-athlete academic success over the last 10 years. In order to understand this subpopulation of student-athletes and the fit and timeliness of this study, this chapter will review the literature in the following sections: (a) a brief history of NJCAA, (b) eligibility criteria to participate in an NJCAA sport at institutions, (c) precollege predictors of student-athlete academic success (GPA), (d) college predictors of student-athlete academic success (GPA) and (e) key gaps in the literature.

Brief History of the NJCAA for Student-Athletes at 2-Year Institutions

The NJCAA has been an integral part of the evolution of student-athletes over the years. The NJCAA was founded in 1938 to provide opportunities for student-athletes at 2-year community colleges to participate in athletic competitions. Since its inception, the NJCAA has grown to include over 500 member colleges and has expanded its athletic offerings to include 29 sports. The NJCAA has also become a pathway for student-athletes to continue their athletic and academic careers at 4-year institutions.

According to the NJCAA website: “It is the mission of the NJCAA to foster a national program of athletic participation in an environment that supports equitable opportunities consistent with the educational objectives of member colleges” (NJCAA, n.d., para. 1). In line with this mission, the academic success of student-athletes under the NJCAA's purview is vital. For the NJCAA and its member schools to measure the efficacy of their programs, academic data is indispensable. Mandinach (2012) stated that data-driven decision-making has “become an essential component of educational practice across all levels” (p. 75).

Consistent and accurate data might enhance the accountability of all stakeholders in college sports, including college leaders, sports managers, coaches, and players, regarding the academic advancement of student-athletes. Such information can influence staffing decisions within athletic departments and guide hiring choices by college leaders. Furthermore, it can shape enrollment strategies and athlete recruitment, particularly in smaller institutions that view sports as a tool to boost student intake (Ashburn, 2007; Brecht, 2014).

One significant change in the evolution of NJCAA student-athletes has been the increased emphasis on academic success (NJCAA, n.d.-c). The NJCAA has set academic eligibility criteria for student-athlete athletic participation, and its member colleges must adhere

to specific academic benchmarks to retain their NJCAA affiliation. Moreover, through collaborations with 4-year institutions, the NJCAA fosters academic achievement and facilitates transfer opportunities for student-athletes. Such initiatives pave the way for these athletes to further their education and athletic pursuits after completing their 2 years at junior colleges.

Another significant change in the evolution of NJCAA student-athletes has been the increased exposure and recognition of NJCAA athletics (NJCAA, n.d.-c). The NJCAA has developed partnerships with media outlets to promote and broadcast NJCAA athletic events, and the NJCAA national championships have become highly competitive and well-attended events. Overall, the NJCAA has played an important role in the evolution of student-athletes by providing opportunities for athletic competition, promoting academic success, and creating pathways for student-athletes to continue their education and athletic careers. While the NJCAA has called for more attention to the academic success and recognition of 2-year student-athletes, the empirical research on this subpopulation continues to lag far behind the student-athletes at 4-year institutions. Further, I will explore the specific criteria that determine the eligibility of student-athletes, shedding light on the essential requirements that pave the way for their participation in NJCAA sports.

Eligibility Criteria to Participate in an NJCAA Sport

To be eligible to participate in a NJCAA sport, student-athletes must meet specific requirements set by the NJCAA. These requirements encompass various aspects, including enrollment, academic eligibility, amateur status, transfer eligibility, physical examination, and obtaining an eligibility certificate from the NJCAA eligibility center. Firstly, student-athletes must be enrolled in at least 12 credit hours of college-level coursework at an NJCAA member institution (NJCAA, n.d.-e). Additionally, they must possess a high school diploma, GED, or

equivalent and meet one of the following academic criteria: a minimum 2.0 GPA on a 4.0 scale in high school, a minimum composite score of 16 on the ACT or 860 on the SAT, or completion of 12 semester hours of college coursework with a minimum 1.75 GPA on a 4.0 scale (Table 2.1).

Furthermore, student-athletes must maintain their amateur status, meaning they should not have received payment for participating in their sport, signed a professional contract, or played on a professional team. Transfer eligibility requirements also apply to those who have previously attended a 4-year institution. To ensure the student-athletes' physical readiness, they must undergo a physical examination conducted by a licensed physician. Lastly, obtaining an eligibility certificate from the NJCAA eligibility center is crucial. It's essential to note that eligibility requirements might differ among various NJCAA sports and member institutions. Student-athletes should collaborate with their athletic departments and academic advisors to ensure they fulfill all criteria for participation in an NJCAA sport.

Table 2.1

Eligibility Criteria Between NJCAA and NCAA Institutions

Eligibility Criteria	NJCAA	NCAA
Institutions type	• 2-year institutions	• NCAA D1 and D2 (large public 4-year universities) • NCAA D3 (usually small private 4-year colleges)
Academic Requirements	• Minimum 2.0 GPA on a 4.0 scale in high school. • Minimum composite score of 16 on the ACT or 860 on the SAT, • Or completion of 12 semester hours of college coursework with a minimum 1.75 GPA on a 4.0 scale. • Varied academic requirements based on individual colleges within the NJCAA.	• Minimum GPA to be considered an early academic qualifier for D1 is 2.3 GPA and a 980 SAT or combined score or 75 ACT sum score. • For D2, a 2.2 GPA and a 900 SAT combined score or 68 ACT sum score
Athletic Scholarships	• Athletic scholarships offered at D1 level based on individual college policies.	• Athletic scholarships offered at Division I, II, and III levels, varying by division and sport.
Amateurism Status	• Athletes must maintain amateur status and abide by NJCAA amateurism regulations.	• Athletes must maintain amateur status and abide by NCAA amateurism regulations.
Transfer Eligibility	• Athletes can transfer between NJCAA colleges without penalty. Some restrictions apply.	• Transfer eligibility rules vary by division, with specific guidelines for eligibility.
Academic Support	• Varied academic support systems provided by individual colleges within the NJCAA.	• Extensive mandatory academic support programs and resources available for student-athletes.
Competition Level	• Competitive athletic opportunities at 2-year institutions with regional and national championships.	• Varied competition levels across Division I, II, and III, with higher competition levels in Division I.

Note. Adapted from NJCAA. (n.d.-e). *2022-2023 eligibility casebook NJCAA manual* and NCAA. (2009b). *NCAA manual: 2022-2023*.

The NJCAA has a long history of supporting student-athletes and providing opportunities for their athletic and academic development (NJCAA, n.d.-e). Over the years, the NJCAA has undergone several changes and advancements, contributing to the evolution of NJCAA student-athletes. The NJCAA has experienced a growth in participation among student-athletes. More individuals are choosing to attend junior colleges to pursue their athletic careers before transferring to 4-year institutions (Table 2.2). This rise in participation has led to increased competition and exposure for NJCAA athletes. Many NJCAA member institutions have made significant investments in upgrading their athletic facilities. This includes improved stadiums, training centers, weight rooms, and practice facilities. The evolution of facilities has provided student-athletes with better resources to develop their skills and compete at a higher level (NJCAA, 2022). NJCAA institutions have recognized the importance of academic success alongside athletic achievement. As a result, they have expanded their academic support services to help student-athletes balance their studies and sports commitments. These services include tutoring, study halls, academic advising, and priority registration.

Table 2.2

Total Numbers of Participating NJCAA Student-Athletes by Men's and Women's Divisions 2005–2017

NJCAA Participation Figures – Men's Division												
Sport	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17
Total Athletes	31,148	31,869	32,920	34,203	36,071	35,776	36,544	35,973	36,108	35,958	35,315	36,411
Total Teams	1,623	1,681	1,705	1,820	1,816	1,822	1,846	1,854	1,852	1,745	1,713	1,729
NJCAA Participation Figures – Women's Division												
Sport	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17
Total Athletes	18,267	18,417	19,071	20,286	21,658	21,867	21,862	22,008	22,338	22,573	22,157	22,785
Total Teams	1,522	1,535	1,587	1,768	1,780	1,818	1,821	1,844	1,853	1,716	1,681	1,699

Note. Adapted from "Student-Athlete Participation Statistics" by NJCAA, 2023. https://d2o2figo6ddd0g.cloudfront.net/1/f/foxubphijs5cjm/NJCAA_SA_Participation_Stats_8.1.17.pdf

The NJCAA has established strong relationships with 4-year colleges and universities, facilitating smoother transfer pathways for student-athletes (NJCAA, n.d.-c). Many athletes use the NJCAA as a steppingstone to continue their athletic careers and pursue higher education at the NCAA or NAIA level. The evolution of technology, particularly the internet and social media, has significantly impacted the exposure and recruitment of NJCAA student-athletes. College coaches and recruiters have easier access to game footage, statistics, and information about NJCAA athletes, leading to increased opportunities for recruitment (Thruston, 2015). The NJCAA offers partial scholarships and financial aid opportunities to student-athletes. These resources help reduce the financial burden and make education more accessible. Additionally, the NJCAA has eligibility rules and regulations regarding scholarships, ensuring fair competition and opportunities for athletes (NJCAA, n.d.-e*)*. The NJCAA has made efforts to promote

diversity and inclusion within its member institutions. Student-athletes from various backgrounds, including international students, have found opportunities to compete and grow in NJCAA programs. This focus on diversity has enriched the experiences and perspectives of NJCAA student-athletes (NJCAA, 2021).

Overall, the evolution of NJCAA student-athletes encompasses a combination of increased participation, improved facilities, enhanced academic support, streamlined transfer pathways, improved exposure and recruitment, skill development, financial aid opportunities, and a commitment to diversity and inclusion (NJCAA, 2022). These advancements have contributed to the growth and success of student-athletes within the NJCAA. NJCAA has these specific requirements and guidelines in place to ensure fair participation in their sports programs. These criteria not only uphold the integrity of competition but also provide student-athletes with equal opportunities to pursue their athletic endeavors. Understanding the eligibility requirements is essential for student-athletes, coaches, and administrators, as it determines the pathway for participation, transfer possibilities, and the level of competition they can expect within the NJCAA system. Furthermore, the eligibility criteria serve as a foundation for compliance and ensure that student-athletes meet the necessary academic and amateurism standards to balance their athletic pursuits with their educational goals. These criteria help maintain a level playing field and contribute to the overall integrity of the NJCAA sports programs.

The academic success of student-athletes in higher education is a subject of considerable interest and importance. Balancing the demands of athletic commitments with the rigors of academic coursework poses unique challenges for these individuals (Comeaux, 2013; Hoffman et al., 2013; Rubin, 2016). Understanding the variables that influence the academic success of student-athletes, as measured by graduation within 150% of the “normal” completion time - 3

years for an associate degree and 6 years for a bachelor's degree - is crucial for developing effective support systems and strategies to enhance their educational experience. It is clear that there is a need for more research specifically focused on NJCAA 2-year student-athletes and their graduation rates. While there is existing research on the academic experiences of student-athletes in 4-year institutions, further investigation is necessary to understand the unique challenges and predictors of success for student-athletes in the NJCAA 2-year college system.

Several studies have investigated the precollege and college factors that contribute to or hinder academic success among student-athletes. These factors encompass individual characteristics, such as time management skills, motivation, academic self-efficacy, gender and race, and SES background, as well as contextual factors, including athletic participation demands, coaching support, academic choices, and institutional resources. These findings offer valuable insights into the complex interplay of variables that impact the academic success of student-athletes.

Precollege Predictors of Student-Athlete Academic Success

Understanding the factors that contribute to student-athlete academic achievements is essential for developing effective support systems and interventions to enhance their educational outcomes. Student-athlete precollege variables encompass a range of factors that students bring with them from their precollege experiences and backgrounds. Specific precollege variables significantly influence student-athletes' cumulative college GPAs. By examining the impact of factors such as gender, race or ethnicity, residency, SES status, and first-generation college student status, one can gain valuable insights into the predictors of academic success for student-athletes in the NJCAA 2-year college system (Huml et al., 2019; Loes & Pascarella, 2015; Sparkman et al., 2012).

Gender of Student-Athletes

Several studies have explored the impact of gender on the academic achievements of student-athletes (Martin et al., 2017). Harper et al. (2013) have highlighted the racial and gender inequities experienced by African American male student-athletes in NCAA Division I college sports. They found that gender disparities, in combination with racial factors, contribute to lower graduation rates and limited academic support for this population. Gaston-Gayles (2005) employed the Sports and Academics Questionnaire (SAMSAQ) on 236 NCAA Division I student-athletes at a Midwestern school to assess the influence of gender on academic performance, retention, and graduation rates within this group. The study uncovered notable distinctions in academic outcomes and motivation between male and female student-athletes, highlighting evident gender disparities. Specifically, female participants exhibited significantly higher levels of academic motivation than their male counterparts. On the other hand, male participants were more motivated athletically than females. This gender difference in academic motivation was echoed in research by Lee and Sten (2017) at an NCAA Division II institution, where females posted higher GPAs. Similarly, Rankin et al. (2016) conducted a study on Divisions I, II, and III student-athletes and observed that female student-athletes consistently outperformed males in terms of GPA.

Gender stereotypes and societal expectations can significantly influence the academic success of student-athletes. Research has shown that traditional gender norms, such as the expectation of male athletes prioritizing sports over academics, can hinder academic engagement and performance (Harrison et al., 2009). Conversely, female student-athletes may face stereotypes that underestimate their athletic abilities and devalue their achievements, leading to limited support and resources for their academic success (Rayburn et al., 2015). These gendered

expectations and biases can shape the experiences and opportunities available to student-athletes, impacting their academic outcomes. Typically, female student-athletes possess distinct aspirations compared to males. They often prioritize academic achievements, viewing athletics as a supplementary college activity (Snyder et al., 2011). Their prospects of transitioning into professional sports are comparatively slim, mainly due to the constrained opportunities in women's professional events, teams, and leagues (Coakley et al., 2011). On the other hand, male student-athletes frequently lean more towards their athletic identity, sometimes overshadowing their academic pursuits during their college tenure (Melendez, 2006).

The availability and effectiveness of support systems for student-athletes can play a significant role in mitigating or exacerbating gender-related disparities in academic success. Cooper et al. (2017) explored the experiences of Black student-athletes in NCAA Division I athletics and found that gender and race intersect to create unique challenges and support needs. The study emphasized the importance of inclusive and culturally sensitive support systems that address the specific needs and experiences of female student-athletes. Additionally, studies have shown that mentorship programs, academic advising, and access to academic resources can positively impact the academic success of both male and female student-athletes (Watt & Moore, 2001). Johnson et al. (2013) discovered that female student-athletes had higher GPAs than male student-athletes based on an analysis of individual course tutoring sessions at a Division I institution.

The influence of gender on student-athlete’s academic achievements is complex and multi-dimensional. Reynolds et al. (2012) found that societal expectations, stereotypes, and varying support systems contribute to gender disparities that shape the educational experiences and outcomes of these athletes. It's imperative to acknowledge these factors when crafting

interventions and support tailored to the distinct challenges of both male and female student-athletes (DeBrock et al., 1996; Rishe, 2008).

Race of Student-Athletes

Comeaux and Harrison (2011) conducted an analysis utilizing data from the Consumer Intelligence Research Partners (CIRP) to explore potential differences in the interactions between faculty members and Division I student-athletes of different racial backgrounds. The research highlighted that faculty support, specifically in terms of assistance with professional goals and study skills, was positively associated with the academic success of White student-athletes in Division I.

However, these factors did not hold the same significance for Black student-athletes, suggesting the presence of racial disparities in faculty interactions within the athletic context. Potuto and O'Hanlon (2007) conducted a national study of student-athletes regarding their experiences as college students. A quantitative analysis using data from 18 large Division I institutions revealed that the graduation rates among African American and Hispanic students were lower compared to their White counterparts. The findings of the study also revealed that student-athletes reported spending a significant amount of time on athletics-related activities, which impacted their ability to engage in other academic and social activities. Despite this, the majority of student-athletes expressed satisfaction with their college experience and believed that participating in athletics had a positive impact on their personal growth and development. In terms of academics, the study found that student-athletes faced unique challenges, including time management, balancing academic and athletic commitments, and the perception of receiving preferential treatment. However, they also reported experiencing support from academic advisors, tutors, and coaches, which positively influenced their academic performance and

overall satisfaction with their college experience. The researchers suggested that future research should delve deeper into the underlying factors that contribute to these disparities, such as SES, access to resources, cultural factors, and institutional support systems.

Stereotypes and societal expectations can significantly influence the academic success of student-athletes based on race. Research has shown that stereotypes and biases, such as the expectation of African American student-athletes excelling only in athletics, can hinder academic engagement and performance (Fuller et al., 2016). Similarly, Asian American student-athletes may face stereotypes that assume they are solely focused on academics, potentially leading to a lack of recognition and support for their athletic achievements (Burnett et al., 2020). These racial stereotypes and biases shape the experiences and opportunities available to student-athletes, impacting their academic outcomes.

Cultural and social capital play crucial roles in the academic success of student-athletes from different racial backgrounds. For example, Anthony and Swank (2018) explored the experiences of Black student-athletes in NCAA Division I athletics and found that the intersection of race and culture creates unique challenges and support needs. The study emphasized the importance of culturally sensitive support systems that address the specific needs and experiences of Black student-athletes. Furthermore, studies have shown that social capital, such as strong social support networks and mentorship programs, positively impacts the academic success of student-athletes from various racial backgrounds (Contreras, 2011).

The availability and effectiveness of institutional support and resources can significantly influence the academic success of student-athletes from different racial backgrounds. Studies have indicated that access to academic support services, tutoring programs, and institutional resources can positively impact the academic outcomes of student-athletes (Sparkman et al.,

2012). However, disparities in resource allocation and accessibility may disproportionately affect student-athletes from marginalized racial groups, leading to potential gaps in academic support.

The effects of race on the academic success of student-athletes are complex and multifaceted. Racial disparities, influenced by stereotypes, expectations, cultural and social capital, as well as institutional support and resources, can impact the educational experiences and outcomes of student-athletes. Recognizing these factors is crucial for developing interventions and support systems that address the unique challenges faced by student-athletes from different racial backgrounds. By understanding the effects of race on academic success, educational institutions can work towards fostering an inclusive environment.

HSGPA

Astin (1993) emphasized the significance of HSGPA, describing it as the "single strongest predictor of degree completion" (p. 193) with a correlation coefficient of 0.29. This observation is consistent with prior studies, confirming the crucial role of HSGPA in forecasting college academic success. Expanding on this, Kuh et al. (2006) conducted extensive research on academic success and student engagement, notably via the National Survey of Student Engagement (NSSE) and the associated book *Student Success in College: Creating Conditions That Matter*. Their findings highlighted a robust positive correlation between student engagement and academics. Students who actively participate in their education through activities such as class discussions, collaborative learning, and interaction with faculty tend to have higher grades, and be more likely to persist and demonstrate deeper levels of learning. They concluded that HSGPA is positively associated with various measures of student success, including higher grades, persistence, and graduation rates. Students with higher HSGPAs typically demonstrate superior academic performance in college, exhibiting a higher likelihood

to persist and achieve degree completion. Consistent with Kuh and Astin's findings, Gipson (2018) concluded that high school grades significantly predict first-year college grades, crucial for graduation success. His meta-analysis revealed that high school grades explain 25% to 35% of the variance in predicting first-year college grades. He argues that while HSGPA provides valuable information about academic abilities, it is not the sole determinant of future achievements. Other elements, such as student engagement, participation in transformative practices, and the overarching college ambiance, are also instrumental in determining student success trajectories.

SES Status

Pascarella and Terenzini (2005) examined the influence of SES status on academic outcomes among student-athletes enrolled at 4-year institutions. They have found that students from lower SES backgrounds face additional challenges in their academic pursuits, such as limited access to resources, financial constraints, and lack of academic preparation. These challenges contributed to lower academic performance, lower graduation rates, and decreased educational attainment. However, it is important to note that Pascarella and Terenzini's work also emphasized that the influence of SES status on academic outcomes is not singular. They recognize the importance of individual factors, such as motivation, resilience, and access to support systems, in mitigating the potential negative effects of SES disadvantages. Additionally, they highlight the role of institutional factors, including the availability of financial aid, academic support services, and inclusive campus environments, in promoting positive academic outcomes for students from diverse SES backgrounds.

The findings highlight HSGPA's pivotal role as a reliable indicator of college academic achievement and degree attainment. Gender disparities reveal that female student-athletes

consistently achieve higher academic standings, especially regarding GPA. Moreover, preliminary data suggests that SES and race influence academic results. However, a deeper exploration is essential to grasp the intricate relationships and effects of these variables. The generalizability of the findings from NCAA institutions to the NJCAA context needs to be examined, as the demographics and dynamics of student-athletes in 2-year institutions may differ from those in 4-year colleges and universities. Understanding the unique experiences and challenges faced by these subgroups is crucial for creating targeted support systems and interventions to promote their academic success.

College Predictors of Student-Athlete Academic Success (GPA)

Understanding the factors of academic success among student-athletes has long intrigued researchers and educators. Recognizing that their dual roles both in the classroom and on the field can create a unique set of challenges and opportunities, researchers have examined a range of college predictors that might influence their academic outcomes. The following section provides a comprehensive review of these key predictors, including college grades, the role of athletic scholarships, the influence of specific college majors, the distinction between individual and team sports, and the concept of athletic identity.

College Grades

According to the findings of Pascarella and Terenzini (2005), college grades emerged as the strongest predictor of degree completion at 4-year institutions. Their research highlighted the significance of achieving good grades during the first year of college, as it positively influenced academic success and increased the likelihood of timely graduation while reducing the probability of dropping out. In a study conducted by Maloney and McCormick (1993) at Clemson University, the impact of athletics on academic success was investigated among a

sample of 595 student-athletes. The findings revealed that, academically, athletes performed approximately 3/10 of a grade point lower than non-athlete students in three out of 10 classes. Furthermore, the study highlighted that athletes participating in revenue sports, such as football and basketball, exhibited slightly poorer academic performance compared to their fellow student-athletes, with a difference of approximately 1/10 of a grade point. These results raise concerns regarding the time constraints faced by athletes in revenue sports, suggesting that the demands of these sports may hinder their ability to fully engage as students.

Athletic Scholarship

Athletic scholarships are a significant component of the college sports landscape, providing financial support and opportunities for student-athletes to pursue their athletic passions while obtaining a higher education. Milton et al. (2012) examined the academic outcomes of student-athletes enrolled at NCAA institutions receiving scholarships and found that while athletic scholarships may initially correlate with lower GPAs, over time, academic performance tends to improve. Gaston-Gayles (2015) examined the relationship between athletic scholarships and retention rates among student-athletes in an NCAA Division I institution and found a positive association between scholarship receipt and higher retention rates. Additionally, research by Rubin and Rosser (2014) investigated the effects of athletic scholarships on graduation rates at 4-year institutions and demonstrated that scholarship recipients had higher graduation rates compared to non-scholarship student-athletes. These findings suggest that athletic scholarships can motivate student-athletes to maintain and improve their academic standing and can contribute to the persistence and successful completion of degrees among student-athletes.

One of the key challenges faced by student-athletes receiving athletic scholarships is balancing their athletic commitments with their academic responsibilities. Research has shown that the demands of competitive sports can place significant time and energy constraints on student-athletes, potentially affecting their academic performance and engagement (Miller et al., 2019). However, with proper time management skills, effective communication with coaches and faculty, and access to support systems, student-athletes can successfully navigate the dual demands of athletics and academics (Santos et al., 2020).

Athletic scholarships have both positive and negative implications for the academic success of student-athletes. While they can initially impact academic performance, athletic scholarships can also motivate student-athletes to excel academically. Moreover, scholarship recipients tend to exhibit higher retention and graduation rates. The provision of academic support services and resources is crucial in ensuring the academic success of student-athletes, particularly those receiving athletic scholarships. Educational institutions should continue to invest in comprehensive support.

College Major

The selection of an academic major is a pivotal decision influencing college students' academic experiences and outcomes. For student-athletes, this choice is intensified by the stringent demands and time obligations of their sports. Many studies have explored the link between academic major selection and academic performance in college students, with a particular focus on student-athletes. Gipson (2018) investigated the effects of major choice on academic success and found that alignment between personal interests and academic major positively correlated with higher GPAs. Similarly, a study by Santos et al. (2020) explored the impact of major choice on academic performance among student-athletes and revealed that

student-athletes who selected majors aligned with their interests and goals demonstrated improved academic outcomes. Stewart et al. (2015) explored the relationship between major choice and student persistence and found that a better fit between the chosen major and individual interests and abilities was associated with higher retention rates. The choice of academic major can significantly influence the career readiness and post-graduation outcomes of student-athletes. Research has shown that selecting a major that aligns with one's career interests and goals can enhance job satisfaction and success after graduation (Gillis & Ryberg, 2021). Furthermore, student-athletes who choose majors that provide transferable skills, such as leadership, teamwork, and discipline, can effectively leverage their athletic experiences to excel in their chosen careers (Sen, 2019; Love et al., 2017). It is crucial for student-athletes to consider the long-term implications of their academic major choice in relation to their future professional endeavors. Houston and Baber (2017) highlighted the prevalence of clustering among student-athletes. Clustering refers to the practice of guiding student-athletes toward easy classes and less demanding academic majors to accommodate their time demands and maintain their eligibility to play. Sanders and Navarro (2015) further supported this notion, stating that clustering is a widespread phenomenon where athletes tend to concentrate in a limited number of academic majors.

Certain majors may require more time and coursework, making it challenging for student-athletes to meet their athletic commitments (Rutledge, 2023). However, effective time management skills, support from academic advisors, and proactive communication with coaches and faculty members can aid student-athletes in navigating the demands of their chosen major and their athletic pursuits (Santos et al., 2020). Offering specialized tools and assistance designed for student-athletes can help them effectively manage both their educational and sports-related

commitments. Tailored support systems for student-athletes include academic advising, tutoring, flexible class scheduling, time management workshops, athletic support services, access to learning resources, and mentorship programs. These resources can help student-athletes balance their academic and athletic commitments effectively and improve their overall academic success. The selection of an academic major significantly influences the academic achievements of student-athletes. A well-suited major can positively impact academic performance, retention, and career readiness. Student-athletes should consider their interests, goals, and the demands of their chosen major to make informed decisions.

Individual and Team Sport

Deciding between individual and team sports is a significant choice in a student-athlete's career. The kind of sport, be it individual or team-oriented, can influence their academic journey and results. A study by Huntrods et al. (2017) revealed that student-athletes participating in individual sports generally achieved higher GPAs than those involved in team sports. Similarly, a study by Wylleman et al. (2019) explored the effects of sport type on academic performance and revealed that student-athletes in individual sports reported better time management skills and had higher academic achievement. The demands of individual and team sports can vary significantly, potentially affecting the time management abilities of student-athletes. Research has shown that student-athletes in individual sports may have greater control over their training and competition schedules, allowing for more flexible time management (Santos et al., 2020). On the other hand, student-athletes in team sports face more rigid practice and game schedules, which can potentially impact their ability to balance academic commitments. However, with effective time management strategies and support systems, student-athletes in both individual

and team sports can successfully manage their athletic and academic responsibilities (Chen et al., 2018).

Studies indicate that team sports offer avenues for social interaction, camaraderie, and team unity, enhancing the overall well-being and satisfaction of student-athletes (Santos et al., 2020; Tinto, 2013). Conversely, participation in individual sports provides student-athletes with a greater sense of self-reliance, independence, and personal achievement, which can also contribute to psychosocial well-being (Wylleman et al., 2019). It is important to note that the psychosocial effects of sport type on student-athletes can be influenced by individual differences and personal preferences. The sport type (individual vs. team) can have implications for the academic success of student-athletes. Participation in individual sports may be associated with higher academic performance and greater time management skills, while team sports can provide opportunities for social interaction and team cohesion. However, the effects of sport type on student-athlete academic success are complex and may be influenced by individual factors and support systems. Educational institutions and athletic programs should provide tailored support services and resources to meet the unique needs of student-athletes in both individual and team sports.

Balancing academic obligations with athletic commitments can impact the psychosocial health of student-athletes. Studies suggest that due to the simultaneous pressures of education and sports, student-athletes frequently face heightened stress, anxiety, and tension (Santos et al., 2020). Balancing rigorous academic coursework with intense training schedules and competitive pressures can contribute to mental health challenges among student-athletes. However, access to comprehensive support systems, including mental health services, counseling, and stress

management resources, can significantly contribute to the psychosocial well-being of student-athletes (Egan, 2019).

Athletic Identity

Athletic identity refers to the degree to which an individual identifies with their athletic role and the importance they place on their athletic involvement. For student-athletes, the development and strength of their athletic identity can significantly impact their academic experiences and outcomes. Bimper (2014) conducted a study investigating the impact of athletic identity on academic engagement and found that student-athletes with a strong athletic identity reported higher levels of academic engagement. Similarly, a study by Kissinger et al. (2015) explored the effects of athletic identity on academic motivation and revealed that student-athletes who identified strongly with their athletic role demonstrated greater academic engagement and a higher sense of purpose in their studies. These findings suggest that a strong athletic identity can positively influence the academic engagement of student-athletes. The drive, discipline, and goal-setting skills cultivated through their involvement in sports can contribute to increased motivation and goal orientation in their academic pursuits. Research has shown that student-athletes who have a strong athletic identity may experience motivation transfer from their athletic pursuits to their academic endeavors (Borak, 2018; Love et al., 2021). Additionally, student-athletes who view their academic achievements as complementary to their athletic success are more likely to display higher levels of intrinsic motivation and academic self-efficacy (Santos et al., 2020).

The strength of athletic identity can also influence the psychosocial well-being of student-athletes. Studies have shown that student-athletes who possess a strong athletic identity may experience a greater sense of self-worth, identity coherence, and social support within their

athletic community (Reardon et al., 2019). However, the emphasis placed on their athletic identity can also lead to challenges, such as difficulties transitioning out of sports and managing the dual demands of athletics and academics. Student-athletes with a strong athletic identity may need additional support to navigate these challenges and maintain their psychosocial well-being throughout their academic journey (Chen et al., 2018). According to Murphy et al. (1996), as cited by Borak (2018), "the physical and psychological demands of intercollegiate athletics, coupled with the restrictiveness of the athletic system, may isolate athletes from mainstream college activities, restrict their opportunities for exploratory behavior, and promote identity foreclosure" (p. 240), leaving students ill-prepared in terms of career preparation and/or life after sport (Chartrand & Lent, 1987; Nelson, 1983; Petitpas & Champagne, 1988).

The integration of academic and athletic identities is crucial for student-athletes to achieve academic success. Student-athletes who perceive their academic and athletic identities as compatible and mutually supportive tend to have higher levels of academic achievement (Love et al., 2021). Academic and athletic integration involves recognizing and leveraging the transferable skills, such as time management, discipline, and teamwork, gained through sports to enhance academic performance. Educational institutions and athletic programs should promote the integration of academic and athletic identities by providing resources, support, and mentoring opportunities that emphasize the importance of both domains (Borak et al., 2018; Rubin, 2015). The development and strength of athletic identity have significant implications for the academic success of student-athletes. A strong athletic identity can positively influence academic engagement, motivation, and psychosocial well-being. Recognizing the unique characteristics and needs of student-athletes and providing appropriate support systems can foster the integration of academic and athletic identities and contribute to their overall academic success.

The key findings highlight the significant impact of college grades, athletic scholarships, college majors, sport type, and athletic identity on academic outcomes. Higher GPAs correlate with better overall performance, athletic scholarships positively influence academic success, certain majors show stronger associations with GPA, and the type of sport affects academic achievement differently. Besides, the concept of athletic identity is relevant, as a stronger identification with the athletic role can impact academic performance. These findings emphasize the multifaceted nature of student-athlete success. However, further research is needed to fully understand the complex interplay of these variables, particularly at the NJCAA level.

Key Gaps in the Literature on 2-Year Student-Athlete Academic Success

The academic achievements of student-athletes are shaped by a complex interplay of various factors. This literature review has explored several key dimensions that contribute to student-athlete academic success, including the effects of gender (Martin et al., 2017; Whitley & McDaniel, 2018), race (Comeaux et al., 2011; Harrison et al., 2018), academic support services (Miller & Weiss, 2022; Love et al., 2017), athletic scholarships (Harrison & Lawrence, 2018), choice of academic major (Miller et al., 2019; Foster & Huml, 2017), sport type (Santos et al., 2022), academic requirements (Miller et al., 2019), and athletic identity (Foster & Huml, 2017, Horton et al., 2015;). Most studies in the existing literature primarily focused on 4-year institutions, particularly NCAA Division I and II schools, which limits the generalizability of their findings. The literature time and again lacks an intersectional perspective, failing to examine how multiple identities, such as race, gender, and SES status, interact and influence student-athlete academic success. Considering the intersectionality of identities can provide a more comprehensive understanding of the challenges faced by student-athletes and help develop targeted interventions. Many studies have focused on short-term academic performance, such as

GPA or eligibility status, without considering long-term outcomes like graduation rates. Understanding the factors that contribute to student-athlete graduation rates at NJCAA 2-year institutions is crucial for designing interventions and support systems that promote success beyond the initial enrollment period.

The conceptual framework of the present study incorporated Astin's (1991) input, environment, and outcome model, along with the principles of Tajfel and Turner's (1979) social identity theory. Social identity theory emphasizes the influence of social group memberships on individuals' identities and behavior. Through this comprehensive fusion, I aim to offer an enriched perspective on how students' experiences and identities interplay, driving student achievement. See Figure 2.1.

Chapter Summary

The literature review explored an array of studies to discern both precollege and college factors that influence student-athlete academic success, specifically assessed by graduation within 150% of the standard completion time - 3 years for an associate degree and 6 years for a bachelor's degree. The literature revealed a multitude of factors shaping the academic trajectories of student-athletes. Nine dominant variables surfaced, encompassing aspects such as gender, race, academic support, athletic scholarship status, GPA, choice of major, sport category, athletic identity, and academic requisites.

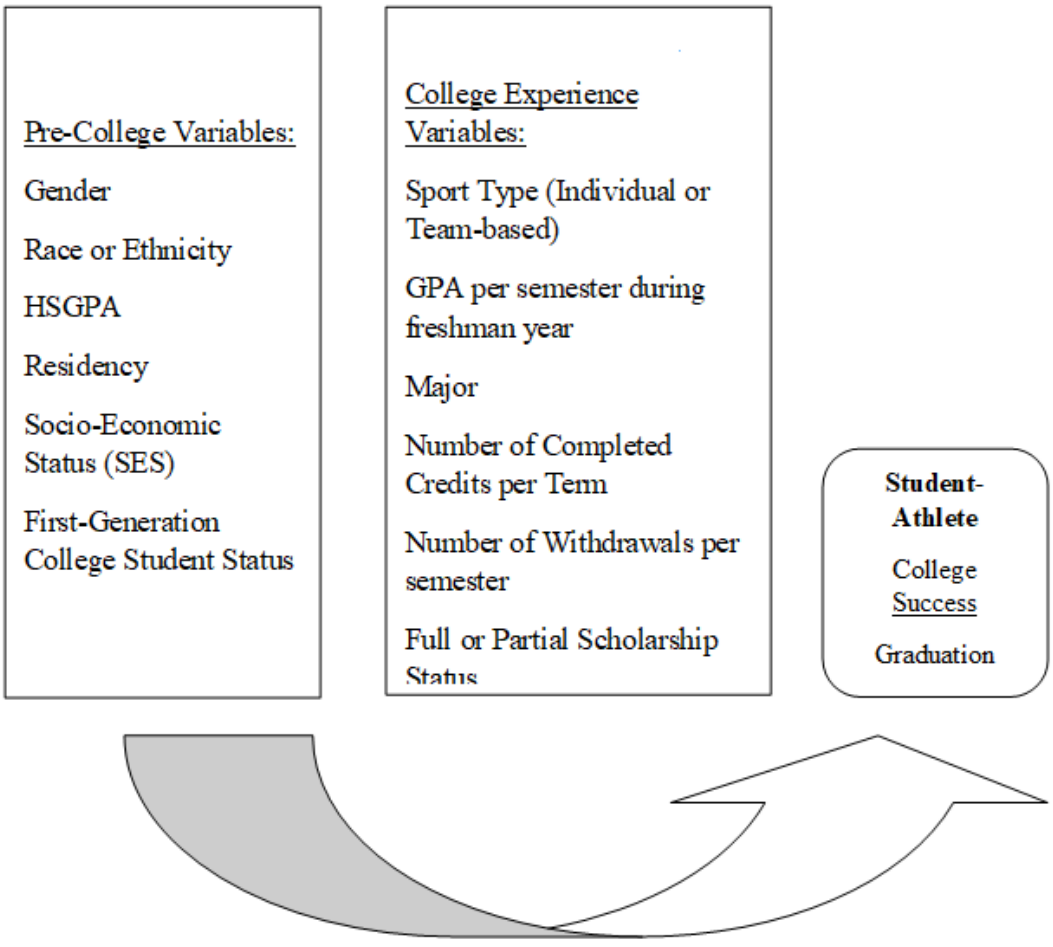
Despite these insights, there remains a research gap concerning NJCAA Division I student-athletes with graduation as the academic success metric. The existing studies target NCAA Division I and II student-athletes. With the scarcity of research on NJCAA student-athlete GPA and academic achievements, there's a pressing need for more in-depth exploration. Specific areas warranting further study include the effects of varying athletic scholarship levels, SES status

gauged by PELL Grant eligibility, sport classification (individual vs. team), and chosen academic major on academic outcomes within NJCAA institutions.

Chapter 3 provides an overview of the methodology of this study, focusing on the study's participant population, data collection methods, and data analysis procedures.

Figure 2.1

Adapted Conceptual Framework: Integration of Astin's IEO Model with Social Identity Theory Leading to Student Success



Chapter 3: Research Design Methodology

General Perspective

Since most of the existing student-athlete academic success research focuses on NCAA Division I and II student-athletes, there continues to be very little evidence determining if the key predictors of graduation success are also relevant for NJCAA Division I student-athletes at 2-year institutions with fewer scholarships and limited institutional resources.

Building on the work of Autry (2010), the purpose of this quantitative study was to use a select group of previously established precollege demographics (i.e., gender, race or ethnicity, residency, HSGPA, SES, status as a first-generation college student) and select college variables (i.e., sport, college GPA per semester freshman year, major, number of completed credits each term, number of withdrawals per semester, full or partial scholarship status) to predict the academic success over a 5-year period (2013-2018) (associate's degree graduation rates) among a cohort of student-athletes attending at a NJCAA Division I community college.

To delve into the research inquiry and assess the hypotheses, this study adopted a quantitative research methodology, building on the approach taken in Autry's (2010) study. With rigorous analysis, the study aimed to explore the following research question:

R1: What student-athlete precollege demographics (i.e., gender, race or ethnicity, residency, SES, and status as a first-generation college student) are significant predictors of associate degree graduation rates within a 5-year period at an NJCAA Division I community college in the United States?

R2: What student-athlete college variables (i.e., sport, college GPA per semester freshman year, major, number of completed credits each term, number of withdrawals per

semester, and full or partial scholarship status) are significant predictors of associate degree graduation rates over a 5-year period at an NJCAA Division I community college in the United States?

Research Design

The purpose of this study was to identify the selected precollege and college variables that predict student-athlete success as defined by graduation within 3 years. I employed a quantitative approach to determine the relationship between the dependent and independent variables. Secondary data was used, and both descriptive and inferential statistics were employed. Descriptive statistics were used to report general results, while inferential statistics was used to determine the relationship between the dependent and independent variables. The data used was archival, collected, and recorded by the institutional effectiveness coordinator, and permission to use the data was obtained. Using established datasets offers the advantage of saving time and resources, enabling comparison with previous studies, facilitating a deeper understanding of existing literature, and contributing to the validity and reliability of the research (Smith, 2008; Hewson, 2006).

According to Cottrell and McKenzie (2005), quantitative research examines relationships among variables and prioritizes measurement. Creswell (2014) describes quantitative research as an empirical approach that aims to measure and analyze variables to examine cause-and-effect relationships or to make predictions. Furthermore, the quantitative approach is mainly centered on post-positivist assertions for developing knowledge (Creswell, 2003). It involves the collection of numerical data through surveys, experiments, or existing sources and employs statistical techniques for data analysis (Creswell, 2003; Newman, 2014; Trochim & Donnelly, 2008). According to Creswell (2014), secondary data is a valuable resource for researchers, as it

allows them to leverage existing datasets and information collected by others. According to Hewson (2006), secondary data is "the further analysis of an existing dataset with the aim of addressing a research question distinct from that for which the dataset was originally collected and generating novel interpretations and conclusions" (p. 274).

Research Context

This study focused on a NJCAA Division I 2-year institution in the Midwest region of the United States from 2013 to 2018. The institution is a public community college that currently enrolls 6,204 students. For the purposes of confidentiality and ease of reference in this study, I refer to this public community college as “The College” moving forward. It attracts students from various backgrounds, including different age groups, ethnicities, and SES. Minority enrollment is 36% of the student body (majority Black and Hispanic), which is more than the state average of 26%. Students who are receiving financial aid represent 94%. When it comes to sports, the institution offers a range of athletic programs for its students. The College takes pride in its strong emphasis on sports, including popular options such as basketball, baseball, softball, soccer, and track and field. This institution was selected for this case study due to its commitment to the values and goals of community colleges nationwide. It focuses on providing affordable education, promoting accessibility to diverse student populations, and supporting students in their academic and personal development. The College has been a part of the NJCAA since 1966, indicating its active involvement in intercollegiate sports at the junior college level. This membership underscores the college's dedication to offering quality athletic programs and fostering opportunities for student-athletes to excel in their chosen sports. The study examined the factors that predict academic success, specifically graduation within 150% of the "normal" completion time (i.e., 3 years) for 2-year first-time-in-college (FTIC) student-athletes.

Research Participants

The sample for this study was archival data from The College. The data used included a convenience sample of all FTIC student-athletes enrolled from 2013-2018 in one of the 28 sports to ensure I had a large enough sample to run a logistical regression analysis. Every student-athlete from The College had to meet the identical requirements for admission to the community college and for participation as a Division I student-athlete in the NJCAA conference. The data were obtained by collaborating with the institutional effectiveness coordinator, who provided a signed sight approval letter stating that the data would be de-identifiable. The target sample included FTIC first-year male and female student-athletes competing in one of the university's 28 official varsity intercollegiate sports teams NJCAA convention (Table 3.1). The sampling strategy aimed to ensure a sufficiently large sample size for conducting a logistical multiple regression analysis. The following sports are considered team sports as defined by the NJCAA: basketball, baseball, soccer, football, softball, and volleyball. The following sports are considered individual sports as defined by the NJCAA: track and field, cross country, swimming, golf, and tennis (NJCAA, 2020). In Table 3.1, each sport was either marked with a “T” for a team sport or an “I” for an individual sport. The secondary data used to evaluate the student-athletes was based on the following independent variables: gender, race, SES (Pell Grant eligibility), residency, first-generation status, HSGPA, athletic scholarship status, sport type, college GPA per semester freshman year, major, number of completed credits each term, number of withdrawals per semester.

Instruments Used in Data Collection

In this study, secondary data was utilized as the data collection method. The institution uses Colleague by Ellucian (2023) as the software or system to house student-athlete and student

data. The data for the variables such as semester and year entered college, graduation year, gender, race, athletic scholarship type (partial/no scholarship), participation in an individual or team sport, residency, HSGPA, first-generation status, major, Pell Grant eligibility, GPA for each of the first 3 semesters (freshman year), number of credit hours each of the first 3 semesters, and number of withdrawals for each of the first 3 semesters are collected through various processes. Some of the precollege variables are collected through the admissions form, while other college variables are entered into Colleague by instructors, coaches, and staff as needed or as they apply.

Table 3.1

Men's and Women's Varsity Sports Offered at The Sample College in the Midwest

Men's	Women's
Baseball (T)	Basketball (T)
Basketball (T)	Cross County (I)
Cross County (I)	Golf (I)
Football (T)	Rodeo(I)
Soccer (T)	Softball (T)
Track and Field (I)	Track and Field (I)
Dance Team (T)	Volleyball (T)
Bowling (T)	Bowling (T)
Cheer Squad (T)	Cheer Squad (T)
Esports (I)	Dance Team (T)
Golf (I)	Esports (I)
Marching Band (T)	Marching Band (T)
Rugby (T)	Rodeo (I)
Swimming (I)	Swimming (I)
Tennis (I)	Tennis (I)
Sports Shooting (I)	Sports Shooting (I)
Rodeo (I)	Soccer (T)
Wrestling (I)	

Procedures Used for Data Collection

The study utilized archival data, initially collected and recorded by the institutional effectiveness coordinator, with appropriate permissions obtained for use in this research. The

data access process was initiated by seeking approval from the institution's director of athletics and the office of institutional effectiveness, ensuring compliance with relevant data access policies.

A systematic communication process unfolded, involving emails and phone conversations with athletic directors at various universities, culminating in access approval at The College. The pivotal steps involved scheduling and conducting meetings with the director of athletics and the institutional effectiveness coordinator to discuss the research study's details and objectives. These discussions facilitated an understanding of the data availability and accessibility conditions.

Upon receiving a site approval letter, assuring that the data would be de-identifiable to protect student confidentiality, the institutional effectiveness coordinator provided the required data to me. The data, once acquired, was stored securely on a password-protected laptop to ensure its integrity and confidentiality throughout the analysis process. The procedure thus ensures ethical handling and utilization of secondary data, aligning with the research's objectives and institutional policies.

Procedures Used for Data Analysis

All available data meeting the study's criteria were utilized in this research to ensure robustness and maximum power in the analyses. The research study aimed to examine the relationship between independent variables—gender, race, HSGPA, residency, Pell Grant eligibility, first-generation status, athletic scholarship status, participation in either individual or team sports, college GPA, credit hours per term, and number of withdrawals per term—and the dependent variable, which is on time graduation within 3 years. Data collection for this research did not require the use of additional instruments, as the necessary information was gathered by

the institutional effectiveness coordinator. This was facilitated through the use of internal student record software that is employed by both the registrar and the enrollment office, with these entities overseeing student records comprehensively from admission to graduation. To safeguard the confidentiality of student-athletes, the data were de-identified before analysis.

The data analysis for this dissertation was executed through a structured, three-step process. Initially, the dataset was examined to identify and rectify any instances of missing subjects, ensuring that all eligible student-athletes were accurately incorporated into the study sample. Subsequently, relevant variables were transformed into dummy variables, followed by encoding to facilitate their integration into the logistic regression function available in the Statistical Package for the Social Sciences (SPSS 27.0). In this transformation process, discrete variables—including gender, race, residency, sport type, major, and scholarship status—were meticulously converted into dichotomous variables. Meanwhile, continuous variables were maintained in their original numeric form. In adherence to the established grading scale of the university, GPAs were systematically categorized into designated ranges. Furthermore, degree hours were compartmentalized into specific ranges, providing a lucid perspective on the student-athlete course loads while distinctly demarcating between part-time and full-time enrollment statuses (Table 3.2).

Secondly, the analysis continued with executing descriptive data and cross-tabulation analyses for each variable to obtain a thorough understanding of the sample's characteristics. The use of descriptive statistics was crucial for summarizing the fundamental features of the sample data, while inferential statistics were used to draw inferences about the population parameters from which the sample was drawn. Lastly, a logistic regression analysis model was used to determine how the dependent variable, graduation within 3 years, could be explained by the

independent variables: gender, race, residency, HSGPA, Pell Grant eligibility, first-generation status, athletic scholarship status, participation in a sport, college GPA per semester freshman year, major, number of completed credits each term, and number of withdrawals per semester. Logistic regression was selected as the

Table 3.2

The Description and Coding of Study Variables

Variables	Description and Coding
Graduation	Dependent variable (Yes = 1, No = 0)
Precollege Demographic Independent Variables	
Gender	
Male	Reference Group
Female	A dummy variable (Yes = 1, No = 0)
Race or Ethnicity	
White	Reference Group
Black	A dummy variable (Yes = 1, No = 0)
Other	A dummy variable (Yes = 1, No = 0)
Residency	
In-State U.S. Resident	Reference Group
Out-of-State U.S. Resident	A dummy variable (Yes = 1, No = 0)
SES (Pell Grant Eligibility)	(Yes = 1, No = 0)
Precollege Academic Independent Variables	
HSGPA	Continuous scale
A 3.75+	
B 3.74 - 2.75	
C 2.74 - 1.25	
D 0.99 - 1.24	
F 0.98 - 0.00	
First Generation	(Yes = 1, No = 0)
College Experience Independent Variables	
Sport	
Football	Reference Group
Basketball	A dummy variable (Yes = 1, No = 0)
Baseball	A dummy variable (Yes = 1, No = 0)
Cross Country	A dummy variable (Yes = 1, No = 0)

Golf	A dummy variable (Yes = 1, No = 0)
Soccer	A dummy variable (Yes = 1, No = 0)
Softball	A dummy variable (Yes = 1, No = 0)
Swimming & Diving	A dummy variable (Yes = 1, No = 0)
Tennis	A dummy variable (Yes = 1, No = 0)
Track & Field	A dummy variable (Yes = 1, No = 0)
Volleyball	A dummy variable (Yes = 1, No = 0)
Dance Team	A dummy variable (Yes = 1, No = 0)
Bowling	A dummy variable (Yes = 1, No = 0)
Cheer Squad	A dummy variable (Yes = 1, No = 0)
Esports	A dummy variable (Yes = 1, No = 0)
Marching Band	A dummy variable (Yes = 1, No = 0)
Rugby	A dummy variable (Yes = 1, No = 0)
Sports Shooting	A dummy variable (Yes = 1, No = 0)
Rodeo	A dummy variable (Yes = 1, No = 0)
Wrestling	A dummy variable (Yes = 1, No = 0)

Scholarship

No Athletic Scholarship	Reference Group
Partial Athletic Scholarship	A dummy variable (Yes = 1, No = 0)

Major

Business	Reference Group
Education	A dummy variable (Yes = 1, No = 0)
Math & Science	A dummy variable (Yes = 1, No = 0
Social Science	A dummy variable (Yes = 1, No = 0)
Undecided	A dummy variable (Yes = 1, No = 0)
Other	A dummy variable (Yes = 1, No = 0)

Cumulative GPA each term enrolled

CGPA1: First Semester	Based on 4.00 scale
CGPA2: Second Semester	Based on 4.00 scale
CGPA3: Third Semester	Based on 4.00 scale

A 3.75+
B 3.74 - 2.75
C 2.74 - 1.25
D 0.99 - 1.24
F 0.98 - 0.00

Number of degree credits each term

Degree Hours 1: First Semester	Semester hours
Degree Hours 2: Second Semester	Semester hours
Degree Hours 3: Third Semester	Semester

hours
0-3 hours
4-6 hours
6-9 hours

9-12 hours	
13-15 hours	
15+ hours	
Ws each semester	
W1: First Semester	Number of courses withdrawn
W2: Second Semester	Number of courses withdrawn
W3: Third Semester	Number of courses withdrawn

analytical method since the dependent variable, graduation within 3 years, is dichotomous. Ishitani (2008) argued that logistic regression represents a powerful analytical approach for policymakers due to its ease of comprehension and practical implications. As noted by Cabrera (1993), logistic regression is an apt statistical method for analyzing the impact of various factors on the probability of a particular educational outcome occurring. In this study, the logistic regression analysis, conducted in SPSS 27.0, provided predictions constrained between 0 (*no on-time graduation*) and 1 (*on-time graduation*), thereby testing the predictions identified during the literature review. The research questions in this study retain some of Autry's (2010) original predictions while introducing additional ones. Autry's inquiry into the predictors of student-athlete success laid the groundwork for identifying significant precollege demographic and academic variables as well as college experience factors that contribute to student-athlete academic success. By aligning with and expanding upon Autry's foundational study, this research seeks to delve deeper into understanding the specific variables that significantly affect the academic success of student-athletes within a distinct institutional context.

RQ1—Precollege Variables: What precollege demographic and academic variables were statistically significant predictors of NJCAA student-athlete success?

R1Ho1 Gender, within the context of the regression model, will be a statistically significant predictor of student-athlete success.

R1Ho2 Race or ethnicity, within the context of the regression model, will not be a statistically significant predictor of student-athlete success (Autry, 2010, p. 32).

R1Ho3 Residency, within the context of the regression model, will not be a statistically significant predictor of student-athlete success (Autry, 2010, p. 32).

R1Ho4 SES, as measured by Pell Grant eligibility within the context of the regression model, will be a statistically significant predictor of student-athlete success.

R1Ho5 HSGPA, within the context of the regression model, will be a statistically significant predictor of student-athlete success.

R1Ho6 First-Generation Status, within the context of the regression model, will not be a statistically significant predictor of student-athlete success (Autry, 2010, p. 32).

RQ2 - College Experience Variables: What college experience variables were statistically significant predictors of NJCAA student-athlete success?

R2Ho1 Sport, within the context of the regression model, will be a statistically significant predictor of student-athlete success.

R2Ho2 Type of athletic financial aid (partial or no athletic scholarship), within the context of the regression model, will be a statistically significant predictor of student-athlete success.

R2Ho3 Major, within the context of the regression model, will not be a statistically significant predictor of student-athlete success (Autry, 2010, p. 32).

R2Ho4 Cumulative GPA each term enrolled (particularly summer, fall, and spring of freshman year), within the context of the regression model, will be a statistically significant predictor of student-athlete success.

R2Ho5 Number of credit hours each term enrolled (particularly summer, fall, and spring of freshman year), within the context of the regression model, will be a statistically significant predictor of student-athlete success.

R2Ho6 Number of withdrawals (W), within the context of the regression model, will be a statistically significant predictor of student-athlete success.

The study conducted binary logistic regression through a systematic three-step process.

Firstly, preliminary analyses were undertaken to evaluate any violations of presupposed assumptions. The identification of outliers was facilitated through the application of Pearson residuals, Analog of Cook's D, and DFBETAS. Adhering to the cutoff recommendations posited by Cohen et al. (2003)—±3.0 for Pearson residuals, Analog of Cook's D, and DFBETA values—was essential. Incorporating these tests in a quantitative analysis framework is crucial as they provide a robust method for detecting and managing potential anomalies in the data. This approach enhances the reliability and validity of the study's findings. By systematically identifying and addressing outliers and influential data points, the analysis ensures that the conclusions drawn are reflective of true patterns and relationships within the data rather than being skewed by unusual values. This meticulous data scrutiny is fundamental in quantitative research to ensure that the statistical interpretations and subsequent conclusions are both accurate and meaningful, thereby offering a clearer and more precise understanding of the underlying phenomena being studied. For assessing the overall fit of a binary logistic regression model, Allison (2012) advises utilizing tests such as the chi-square or Hosmer and Lemeshow test, with the latter being especially robust in situations involving continuous covariates in the model or smaller sample sizes. The importance of running these tests in a quantitative analysis lies in their ability to evaluate the model's adequacy and accuracy in representing the data. The chi-square

test helps determine whether the observed data significantly deviate from the model's predictions. Meanwhile, the Hosmer and Lemeshow test is particularly effective in assessing the goodness-of-fit for models with continuous predictors. These tests are crucial as they provide insights into how well the model explains the data, indicating the suitability of the chosen model for the data at hand. This is essential for ensuring the reliability of the conclusions drawn from the analysis. In essence, such tests aid in confirming that the logistic regression model accurately captures the underlying relationships in the data, thereby enhancing the credibility and applicability of the research findings. The assumption of independent residuals was tested through multicollinearity diagnostics, following the recommendations of Hosmer et al. (2013). The variance inflation factor (VIF) was chosen as the metric to test this assumption. Hair et al. (2010) recommend a check of bivariate correlations among independent variables using each variable's VIF to detect multicollinearity. Should multicollinearity be observed with VIF values surpassing 10, the resolving approach would have entailed the elimination of the concerned independent variables from the concluding data analysis. This approach, adhering to the guidelines set forth by Hosmer et al. (2013) and Hair et al. (2010), was critical in preventing the distortion of regression coefficients and in maintaining the predictive validity of the model. This process was essential for accurately assessing the impact of precollege demographic and college experience variables on the 3-year graduation rates of NJCAA student-athletes, thereby ensuring the model's predictive validity and reliability in answering the research questions.

Subsequent steps involved data transformation and normalization. This crucial process entailed converting discrete variables into dichotomous forms while preserving continuous variables in their numeric format. Such transformations, coupled with careful coding and structuring for analysis using SPSS 27.0, were essential for ensuring the data's suitability for the

intended analytical methods. In this context, discrete variables like gender, race, residency, sport type, major, and scholarship status underwent meticulous conversion into dichotomous variables. Continuous variables, on the other hand, were retained in their original numeric form. Aligning with the college's grading scale, GPAs were categorically organized into defined ranges, and degree hours were segmented to clearly reflect the student-athletes' course loads.

In the second stage of analysis, the overarching relationship was examined by utilizing the likelihood ratio test, Cox and Snell index, Nagelkerke index, and the percentage of correctly classified cases. This phase aims to understand the extent of variation in the dependent variable accounted for by the model, a crucial statistic that, as per Hosmer et al. (2013), offers a reliable measure of model fit within the SPSS environment. This is crucial for understanding the model's effectiveness in predicting or explaining the dependent variable. The percentage of correctly classified cases further validates the model's predictive accuracy. Lastly, the third step explained the distinct impact exerted by each independent variable. This step was essential for identifying which factors are significant predictors and understanding the nature of their relationship with the dependent variable. This was achieved by interpreting coefficients, standard errors, Wald tests, and odds ratios (Exp(β)). The variables were incrementally incorporated into the model in blocks, commencing with precollege demographic and academic variables and concluding with college experience variables. The incremental inclusion of variables in blocks allows for a systematic examination of their impact, facilitating a clearer understanding of how different types of variables (precollege and college experience) contribute to the outcome. This comprehensive approach ensured a nuanced understanding of the data, enhancing the validity and applicability of the research findings. Here, odds ratios exceeding 1 signified a positive

correlation between the variables, whereas odds ratios below 1 indicated a negative correlation, as noted by Hosmer et al. (2013).

In sum, the influence of graduation and non-graduation is subject to the interplay of multiple variables, which can sometimes complicate their relationship with each other. Unlike cross-tabulations, which fall short in isolating the individual impact of a specific variable on the dependent variable with other variables controlled, logistic regression modeling offers a more nuanced analysis. This method is particularly advantageous for this study since the dependent variable—graduation within 3 years—is dichotomous in nature. Ishitani (2008) highlights the strength of logistic regression as an analytical tool, particularly for policymakers, due to its straightforward interpretability and practical utility. Cabrera (1993) further underscores its suitability, deeming logistic regression an effective statistical technique for evaluating how various factors influence the likelihood of specific educational outcomes. Additionally, cleaning and missing case analysis were conducted to assess the impact of data missingness on all logistic regression models. Before conducting logistic regression, data cleaning and sorting are essential steps to ensure the validity and reliability of the analysis, especially when examining complex relationships between multiple variables. This process involves correcting errors, handling missing data, and formatting variables appropriately to address the limitations of simpler analytical methods like cross-tabulation. Logistic regression is particularly suitable for dichotomous dependent variables, such as graduation outcomes, and allows for a nuanced understanding of how various factors impact these outcomes. Data cleaning ensures that the logistic regression model accurately reflects the relationships between these variables, free from distortions caused by anomalies or incomplete data, thereby providing clear and actionable insights for policymakers and

researchers. The logistic regression analysis aimed to predict graduation (with non-graduation as the reference category) using various independent parameters, including sports participation (with football as the reference), gender (with male as the reference), race (with White as the reference), residency (with in-state as the reference), athletic scholarship (with none as the reference), first-generation college student status (with no as the reference), academic program (with business as the reference), Pell Grant eligibility (with no as the reference), HSGPA, number of credits in the first semester, GPA in the first semester, number of course withdrawals in the first semester, number of credits in the second semester, GPA in the second semester, number of course withdrawals in the second semester, number of credits in the third semester, GPA in the third semester, and number of course withdrawals in the third semester. The analysis reported adjusted odds ratios (AOR) with 95% confidence intervals (95% CI) for each independent parameter. All analyses were conducted using SPSS Version 27, and statistical significance was determined at an alpha value of 0.05. Initially, the model contained 18 independent variables, which were categorized into two blocks and added in the following sequence: precollege demographic and academic variables (including gender, race, residency, HSGPA, first- generation status, and Pell Grant eligibility) and college experience variables (such as sport, scholarship status, major, GPA for each semester, total degree hours for each semester, and the number of course withdrawals for each semester).

Summary

This research study utilized secondary data records to examine the relationship between various independent variables (i.e., gender, race, residency, HSGPA, first-generation status, Pell Grant eligibility, athletic scholarship status, participation in a sport, major, credits hours per

term, college GAP, and number of withdrawals per term) and the dependent variable, graduation within 3 years. The study employed convenience sampling with data obtained from the institutional effectiveness coordinator through internal student record software used by the registrar and enrollment office. I gained approval from the director of athletics and the institutional effectiveness office and followed a series of steps to access the de-identified secondary data. The data was analyzed using descriptive and inferential statistics, including cross-tabulation and regression models. The analysis was conducted using Version 27 of SPSS software. The study aimed to provide insights into the factors influencing NJCAA student-athlete graduation on time and explore their relationships to inform future interventions and support.

Chapter 4: Results

Introduction

Autry's (2010) study on NCAA Division II student-athletes set a significant precedent, delving deep into factors like gender, race, residency, HSGPA, Pell Grant eligibility, SAT scores, college GPA, number of degree hours per term, number of withdrawals per term, and sport type to predict academic success defined by graduation within 6 years. Employing binary logistic regression, Autry's findings revealed crucial correlations with broad implications for the educational landscape. The NJCAA, which primarily focuses on 2-year colleges, does not offer centralized reports on graduation rates for student-athletes at its member institutions, unlike the NCAA, which regularly publishes such data. Therefore, the purpose of this quantitative archival study was to predict the graduation rates for NJCAA Division I student-athletes enrolled at a community college in the Midwest United States over a 5-year period (2013-2018) using a select group of previously established precollege demographics (i.e., gender, race or ethnicity, residency, socioeconomic status, and status as a first-generation college student) and select college experience variables (i.e., sport, college GPA per semester freshman year, major, number of completed credits each term, number of withdrawals per semester, and full or partial scholarship status). This study focused on addressing the evident gap in research concerning the academic success of student-athletes enrolled at 2-year NJCAA institutions.

This chapter presents the results of the research, establishing parallels with Autry's (2010) findings. Each segment of the data is unpacked, demonstrating a nuanced

understanding of the multiple elements shaping academic success and timely graduation. The chapter unfolds with detailed descriptive statistics for all independent variables, highlighting frequencies, percentages, and other relevant metrics for categorical and continuous variables alike. Subsequently, cross-tabulations and bivariate correlations provide insights into the relationships between dependent variable graduation within 3 years and all independent variables. The chapter concludes with the outcomes from the binary logistic regression analyses.

Preliminary Data Cleaning Phase

In this quantitative analysis, a comprehensive, multitiered approach was adopted in the data-cleaning phase to ensure the integrity and accuracy of the data. I began with preliminary analyses, focusing on detecting any instances of missing data, examining potential violations of presupposed statistical assumptions, and addressing outliers. The application of Pearson residuals, Analog of Cook's D, and DFBETAS, in line with Cohen et al.'s (2003) recommended cutoff values, was instrumental in systematically identifying and rectifying data anomalies, thereby bolstering the robustness of the statistical outcomes. By adhering to recommended cutoff values and verifying key statistical assumptions, these tests helped accurately assess the impact of precollege demographic variables (R1) and college experience factors (R2) on the 3-year associate degree graduation rates of NJCAA student-athletes. This rigorous approach to data integrity was essential for drawing reliable conclusions from the logistic regression models used in the study.

Data Analysis by Research Question

Demographic Characteristics and Precollege Variables of the NJCAA Student-Athlete Cohort from 2013-2018

Student-athlete characteristics before college enrollment, beginning fall 2013, encompassed gender, race, residency, socioeconomic status (as determined by Pell Grant eligibility), first-generation status, and HSGPA. Table 4.1 presents a comprehensive overview of the enrollment and graduation rates of student-athletes, along with their precollege demographic characteristics. The data span 5 academic years, beginning with the 2013-14 cohort and extending through the 2017-18 cohort. Over these years, the enrollment of student-athletes fluctuated, starting with 495 individuals (17.66% of the total) in 2013-14 and gradually increasing to 622 (22.19%) by the 2017-18 academic year. This gradual increase indicates a growing participation of student-athletes over time. In terms of graduation rates, the study found that 38.01% (N=1068) of the student-athletes graduated within 150% of the normal completion time, while the remaining 61.09% (N=1735) did not graduate within this timeframe. These results align with national data that shows only 34% graduation from 2-year colleges in 3 years. This graduation rate highlights the challenges and dynamics specific to the student-athlete population in achieving academic success within the expected period, consistent with the studies indicate substandard student-athlete academic performance and low reported graduation rates (DeBrock et al., 1996; Maloney & McCormick, 1993; Reynolds et al., 2012; Shulman & Bowen, 2001). Delving into the precollege variables, the study revealed a diverse demographic composition of the student-athletes. The gender distribution shows a majority of male student-athletes, constituting 71.9% (n = 2016) of the sample, compared to 28.1 % (n = 787) female student-athletes. In terms of race and ethnicity, the majority were White (57.2%), followed by Black student-athletes (25.25%), and a significant portion from other ethnic backgrounds (17.55%). The residency status of the student-athletes also varied, with a majority of 62.5% (n = 1753)

being from within the state, indicating a local dominance in the cohort. The out-of-state student-athletes formed a substantial minority at 37.5% (n = 1050).

Economically, more than half of the student-athletes, 51.9% (n = 1432), were recipients of the Pell Grant, suggesting a considerable representation from lower socioeconomic backgrounds. Those not qualifying for the Pell Grant made up 48.1% (n = 1371) of the sample. Additionally, the data showed a nearly even split regarding first-generation college student status: 52.6% (n = 1473) of the student-athletes were the first in their families to attend college, while 47.4% (n = 1330) were not.

Table 4.2 in the study provides a detailed analysis of the HSGPA distribution among the student-athlete sample. The majority of student-athletes, representing 47.63 % of the sample (n = 1335), achieved an HSGPA in the C range, between 2.74 and 1.25. This suggests a significant portion of the cohort performed at an average academic level during their high school years.

Table 4.1

Demographic Precollege Characteristics, Enrollment, and Graduate Rates for the Community College Student-Athlete Cohorts from 2013–2018 at an NJCAA Institution (n = 2,803)

Characteristic	n	%
Cohort Enrollment		
2013-14	495	17.66
2014-15	525	18.73
2015-16	583	20.80
2016-17	578	20.62
2017-18	622	22.19
Cohort Graduation		
Graduated (within 150%)	1,068	38.01
Did not Graduate	1,735	61.09
Precollege Variables at Fall Start		
Gender		
Male	2,016	71.90
Female	787	28.10

Characteristic	n	%
Race		
White	1,602	57.20
Black	708	25.25
Other	493	17.55
Residency Status		
In-State	1,753	62.50
Out-of-State	1,050	37.50
Pell Grant Eligibility		
Yes	1,,432	51.90
No	1371	48.90
First Generation Status		
Yes	1,473	52.6
No	1,330	47.4
HSGPA		
A 3.75+	142	5.07
B 3.74 -2.75	1,117	39.85
C 2.74 - 1.25	1,335	47.63
D 0.99 - 1.24	15	0.54
F 0.98 - 0.00	6	0.21
No GPA	188	6.71

Note. The 2013-2018 student-athlete cohorts entered the 2-year Institution with an average GPA of 2.68 (SD = 0.65).

Table 4.2

Descriptive Statistics of High School GPA for the Community College Student-Athlete Cohorts from 2013–2018 at an NJCAA Institution (n = 2,803)

			Statistic	Std. Error
HSGPA	95% Confidence Interval for Mean	Lower Bound	2.65706	
		Upper Bound	2.70890	
	5% Trimmed Mean		2.68822	
	Median		2.69000	
	Variance		.4283	
	Std. Deviation		.654140	
	Minimum		.000	
	Maximum		4.281	
	Range		4.281	
	Interquartile Range		.976	
	Skewness		-.118	.049
	Kurtosis		-.483	.099

Note. The 2013-2018 student-athlete cohorts entered the 2-year institution every fall term with an average GPA of 2.68. This table presents descriptive statistics for the HSGPA of community college student-athlete cohorts from 2013 to 2018 at an NJCAA institution (n = 2803). The mean HSGPA is 2.68, with a standard error of .013. The 95% confidence interval for the mean ranges from 2.66 to 2.71. The table also includes the 5% trimmed mean, median, variance, standard deviation, minimum, maximum, range, interquartile range, skewness, and kurtosis of HSGPA. Skewness and kurtosis standard errors are .049 and .099, respectively.

Additionally, a considerable number of student-athletes, 39.85 % (n = 1,117), attained GPAs in the B range (between 3.75 and 2.75), while a smaller fraction, 5.07 % (n = 142), achieved GPAs in the A range (above 3.75). In examining HSGPA, the mean was found to be 2.68 (SD = 0.65). The 95% confidence interval for the mean ranged from 2.65 to 2.70. Further analysis revealed a 5% trimmed mean of 2.68 and a median of 2.69. The data displayed a variance of 0.4283, with GPAs ranging from a minimum of 0.00 to a maximum of 4.0 and an interquartile range of 0.976. Skewness was -0.118 (SE = 0.049), and kurtosis was -0.483 (SE = 0.099).

College Experience Variables of the NJCAA Student-Athlete Cohort from 2013-2018

In this study, I examined various college experience variables among student-athletes

upon their enrollment at the College. These variables encompassed their chosen sport, scholarship status, and major, as well as their college GPAs, degree hours, and withdrawal rates for each of the first three terms enrolled, as detailed in Table 4.3.

Among the diverse sports represented, football emerged as the most prominent team sport, constituting 24.8 % (n = 694) of the sample, followed by men's baseball at 7.0 % (n = 197). Notably, wrestling and men's track and field, categorized as individual sports, contributed significantly to the sample, comprising 5.7 % (n = 161) and 5.6 % (n = 158), respectively. Marching band and cheer, both team activities, accounted for 5.6 % (n = 156) and 5.0 % (n = 140) of student-athletes, respectively. Men's basketball, men's soccer, and rodeo, representing team sports, made up 4.9 % (n = 137), 4.7 % (n = 132), and 3.5 % (n = 98) of the sample, respectively. Similarly, women's soccer, volleyball, and women's basketball, all team sports, constituted 2.4 % (n = 95), 2.2 % (n = 83), and 2.2% (n = 69) of student-athletes, respectively.

Regarding scholarship status, I found that 20.6% (n = 578) of the student-athletes received partial scholarships, while the majority, 79.4 % (n = 2225), did not receive any scholarships. Examining college major choices, initially, the sample displayed 189 majors. To facilitate data collection and reporting, the majors were categorized into 10 distinct fields by discipline. Notably, business emerged as the most popular major, with 33.5% (n = 938) of student-athletes selecting it as their academic pursuit. Education followed, with 10.5 % (n = 294) of student-athletes majoring in this field. Additionally, 7.9 % (n = 222) of student-athletes pursued degrees in industrial technology, and 6.6 % (n = 186) of student-athletes pursued degrees in health sciences. Interestingly, only a small proportion, specifically 0.6 % (n = 16), of the student-athletes were pursuing general studies as their majors at the time of their initial enrollment. This comprehensive breakdown of college major selections provides valuable

insights into the academic interests and career paths of the student-athletes in the study.

Academically, the average GPAs for student-athletes in the first, second, and third terms were 2.59, 2.42, and 2.57, respectively. When considering degree hours, the average for the first term (fall) was 10.64, which increased to 10.89 in the second term (winter) and further decreased to 9.95 in the third term (spring) of their first year of enrollment. Withdrawal rates across all three terms were relatively high, with 18.3 % (n = 515) for the first term, 18.9% (n = 528) for the second term, and 10.2% (n = 287) for the third term. These findings collectively provide a comprehensive overview of the initial college experiences of the student-athletes in this study, providing clarity on their athletic backgrounds, scholarship statuses, and academic pursuits.

Table 4.3

College Experience Characteristics of the NJCAA Student-Athlete Cohorts (n = 2,803)

Characteristic	n	%	MIN	MAX	Mean	S.D.
Sport Played						
Cheer (Co-ed)	140	5				
Dance (Co-ed)	42	1,5				
Men's eSPORTS	3	0.1				
Men's Football	694	24.8				
Marching Band (Co-ed)	156	5.6				
Men's Basketball	137	4.9				
Men's Bowling	63	2.2				
Men's Baseball	197	7				
Men's Cross Country	79	2.8				
Men's Golf	47	1.7				
Men's Rugby	68	2.4				
Men's Soccer	132	4.7				
Men's Sports Shooting	61	2.2				
Men's Swimming	32	1.1				
Men's Tennis	18	0.6				
Men's Track and Field	158	5.6				
Men's Rodeo	98	3.5				
Women's Volleyball	83	3				
Women's Basketball	69	2.5				
Women's Bowling	40	1.4				

Characteristic	n	%	MIN	MAX	Mean	S.D.
Women's Cross Country	42	1.5				
Women's Golf	10	0.4				
Men's Wrestling	161	5.7				
Women's Softball	68	2.4				
Women's Soccer	95	3.4				
Women's Sports Shooting	15	0.5				
Women's Swimming	24	0.9				
Women's Tennis	5	0.2				
Women's Track and Field	66	2.4				
Scholarships						
Partial	578	20.6				
None	2,225	79.4				
College Major by Discipline						
Business	938	33.5				
Communication	67	2.4				
Education	294	10.5				
General Studies	16	0.6				
Health Sciences	186	6.6				
Humanities	176	6.3				
Industrial Technology	222	7.9				
Mathematics	79	2.8				
Science	338	12.1				
Social Sciences	487	17.4				
GPA 1st Term			0	4	2.59	1.07
A 3.75+	415	14.81				
B 3.74 - 2.75	1,040	37.10				
C 2.74 - 1.25	982	35.03				
D 0.99 - 1.24	98	3.50				
F 0.98 - 0.00	268	9.56				
GPA 2nd Term			0	4	2.42	1.13
A 3.75+	252	10.52				
B 3.74 - 2.75	881	36.77				
C 2.74 - 1.25	854	35.64				
D 0.99 - 1.24	90	3.76				
F 0.98 - 0.00	319	13.31				
GPA 3rd Term			0	4	2.57	1.14
A 3.75+	292	16.61				
B 3.74 - 2.75	664	37.77				
C 2.74 - 1.25	556	31.63				
D 0.99 - 1.24	62	3.53				
F 0.98 - 0.00	184	10.47				

Characteristic	n	%	MIN	MAX	Mean	S.D.
Credit Hours 1st Term			0	21	10.64	4.95
0-3 hours	408	14.56				
4-6 hours	113	4.03				
6-9 hours	347	12.38				
9-12 hours	584	20.83				
13-15 hours	722	25.76				
15+ hours	629	22.44				
Credit Hours 2nd Term			0	22	10.89	5.28
0-3 hours	367	15.32				
4-6 hours	84	3.51				
6-9 hours	239	9.97				
9-12 hours	537	22.41				
13-15 hours	442	18.45				
15+ hours	727	30.34				
Credit Hours 3rd Term			0	24	9.95	5.47
0-3 hours	336	11.11				
4-6 hours	106	6.03				
6-9 hours	233	13.25				
9-12 hours	348	19.80				
13-15 hours	301	17.12				
15+ hours	434	24.69				
Withdrawal from Course 1st Term			0	9	0.052	0.288
0 Withdrawals	2288	81.6				
1 Withdrawals	334	11.9				
2 Withdrawals	55	2.0				
3 Withdrawals	26	0.9				
4 Withdrawals	52	1.9				
5 Withdrawals	32	1.1				
6 Withdrawals	8	0.3				
7 Withdrawals	4	0.1				
8 Withdrawals	1	0.0				
9 Withdrawals	3	0.1				
Withdrawal from Course 2nd Term			0	10	0.04	0.29
0 Withdrawals	1868	66.6				
1 Withdrawals	352	12.6				
2 Withdrawals	69	2.5				
3 Withdrawals	30	1.1				
4 Withdrawals	37	1.3				
5 Withdrawals	28	1.0				
6 Withdrawals	7	0.2				
7 Withdrawals	2	0.1				

Characteristic	n	%	MIN	MAX	Mean	S.D.
8 Withdrawals	2	0.1				
10 Withdrawals	1	0.0				
Withdrawal from Course 3rd Term			0	10	0.033	0.24
0 Withdrawals	1471	52.5				
1 Withdrawals	196	7				
2 Withdrawals	34	1.2				
3 Withdrawals	15	0.5				
4 Withdrawals	13	0.5				
5 Withdrawals	20	0.7				
6 Withdrawals	5	0.2				
7 Withdrawals	2	0.1				
9 Withdrawals	1	0.0				
0 Withdrawals	1	0.0				

Note. Partial scholarships address various financial needs for educational expenses; full-time credit hours are defined as 12+ credits per semester and 3/4 time as 9–11 credits. Withdrawals are course dropouts post add/drop period, not affecting GPA but noted on transcripts. To facilitate data collection and reporting, the majors were categorized into 10 distinct fields by discipline. Industrial technology discipline included majors such as automotive, electrical, diesel technology, carpentry, and engineering. Social sciences cover majors like criminal justice, culinary arts, digital mass communication, and psychology.

Cross-Tabulations of Graduation Patterns of Student-Athletes

The results of cross-tabulations between the dependent variable, graduation within 3 years, and the independent predictor variables in the study are presented in Table 4.4. This analysis reveals the percentages of student-athletes who graduated and those who did not graduate for each predictor variable, along with their respective Pearson chi-square significance levels. These significance levels demonstrate the associations between each independent variable and graduation without controlling for other independent variables.

Precollege Demographic and Academic Variables

In the context of precollege demographic and academic variables, the following key findings have emerged. There were significant differences in graduation rates within 3 years between male and female student-athletes ($p < 0.001$). Notably, female student-athletes achieved a higher graduation rate of 49.68% ($n = 391$), surpassing their male counterparts by

approximately 16.1%. Race played a significant role ($p < 0.05$) in influencing graduation rates, with Black student-athletes exhibiting a graduation likelihood about 23.40% lower than White student-athletes. Distinctions between in-state and out-of-state student-athletes were statistically significant ($p < 0.01$). In-state student-athletes demonstrated a graduation rate over 20.87% higher

Table 4.4

Cross-Tabulation of Precollege Variables and Graduation Status of the NJCAA Student-Athlete Cohorts from 2013–2018 at a 2-Year Institution (n = 2,803)

Variable	*n*	Graduated	*n*	Did Not Graduate	X^2
Gender					***
Male	677	33.58	1339	66.42	
Female	391	49.68	396	50.32	
Race					*
White	755	47.13	847	52.87	
Black	168	23.73	540	76.27	
Other	145	29.41	348	70.59	
Residency					*
In-State	805	45.92	948	54.08	
Out-of-State	263	25.05	787	74.95	
Pell Grant Eligibility					*
Yes	422	29.47	1010	70.53	
No	646	47.12	725	52.88	
HSGPA					*
A 3.75+	87	61.27	55	38.73	*
B 3.74 - 2.75	552	49.42	565	50.58	
C 2.74 - 1.25	320	23.97	1015	76.03	
D 0.99 - 1.24	2	13.33	13	86.67	
F 0.98 - 0.00	0	0.00	6	100.00	
First Generation Stat					
Yes	472	32.04	1001	67.96	*
No	596	44.81	734	55.19	

Note. *n* = 2,803. *Significant at the 0.05 level. **Significant at the 0.01 level. ***Significant at the 0.001 level.

than their out-of-state counterparts. Pell Grant-eligible student-athletes were found to be

nearly 17.65% less likely to graduate within 3 years compared to non-Pell Grant-eligible student-athletes ($p < 0.001$). Significant variations in graduation rates based on HSGPA were observed ($p < 0.001$). Student-athletes with HSGPAs in the A and C range were notably more likely to graduate than those with lower HSGPAs. Specifically, those with HSGPAs in the A range achieved a graduation rate of 61.27 % ($n = 87$), those in the B range graduated at a rate of 49.42 % ($n = 552$), while those C range graduated at a rate of 23.97 % ($n = 320$).

The findings of this study offer valuable insights into the relationships between precollege demographic and academic factors and the likelihood of student-athlete graduation within a 3-year period. It is important to note that these associations were analyzed individually. To gain a more comprehensive understanding, further research should focus on exploring these relationships by considering the potential interplay and combined effects of multiple predictor variables. This approach will allow for a more holistic assessment of the factors influencing student-athlete graduation outcomes.

College Experience Variables

The findings from the cross-tabulation analyses, as presented in Table 4.5, revealed significant associations between sport participation and graduation within 3 years ($p < 0.001$). Among different sports, women's tennis had the highest graduation rate at 100 % ($n = 5$), followed closely by women's sports shooting at 80.00% ($n = 12$), men's tennis with a graduation rate of 72.2% ($n = 13$), and women's golf at 70.00% ($n = 7$). Furthermore, when examining other sports, we observed varying graduation rates. Football student-athletes achieved a graduation rate of 61.11 % ($n = 72$), baseball student-athletes graduated at a rate of 54.31% ($n = 107$), and basketball student-athletes had a graduation rate of 24.09% ($n = 33$). Additional sports with their respective graduation rates included marching band at 47.44% ($n = 74$), rodeo at

58.16% (n = 57), cheer at 40.71% (n = 57), men's track and field at 30.38% (n = 48), men's soccer at 35.61% (n = 47), wrestling at 27.95% (n = 45), women's soccer at 46.32% (n = 44), women's softball at 63.24% (n = 43), volleyball at 50.60% (n = 42), men's cross country at 48.10% (n = 38), men's sports shooting at 57.38% (n = 35), men's golf at 65.96% (n = 31), men's bowling at 49.21% (n = 31), women's track and field at 43.94% (n = 29), women's basketball at 40.58% (n = 28), dance at 57.14% (n = 24), women's cross country at 50.00% (n = 21), women's bowling at 35.00% (n = 14), men's rugby at 16.18% (n = 11), women's swimming at 50.00% (n = 12), men's swimming at 34.38% (n = 11), and ESPOR at 33.33% (n = 1). Those with partial scholarships graduated at 19.72% (n = 114), and student-athletes with no scholarship graduated at 42.88% (n = 944).

The analysis unveiled a significant relationship between student-athletes' chosen majors and their graduation within 3 years ($p < 0.001$). Notable variations in graduation rates were observed across different academic program categories. Industrial technology majors, encompassing fields such as automotive, electrical, and diesel technology, as well as carpentry and engineering, achieved an impressive graduation rate of 50.90%. In contrast, math and science majors reached rates of 43.04% and 41.42%, respectively. Education, communication, humanities, business, and social sciences majors, which include disciplines like criminal justice, business, culinary arts, digital mass communication, pre-athletic training, pre-medicine, sports medicine, and psychology, demonstrated robust graduation rates of 38.10%, 37.31%, 36.66%, 36.03%, 35.48%, and 35.11%, respectively. Conversely, student-athletes pursuing general studies had a graduation rate of 31.25%.

Table 4.5

Cross-Tabulation of College Experience Variables and Graduation Status of the NJCAA Student-Athlete Cohorts from 2013–2018 at a 2-Year Institution (n = 2,803)

Variable	n	% Graduated	n	% Did Not Graduate	X2
Sport Played					***
Cheer (Co-ed)	57	40.71%	83	59.29%	
Dance (Co-ed)	24	57.14%	18	42.86%	
Men's ESPOR	1	33.33%	2	66.67%	
Men's Football	148	21.33%	546	78.67%	
Marching Band	74	47.44%	82	52.56%	
Men’s Baseball	107	54.31%	90	45.69%	
Men’s Basketball	33	24.09%	104	75.91%	
Men’s Bowling	31	49.21%	32	50.79%	
Men’s Cross Country	38	48.10%	41	51.90%	
Men’s Golf	31	65.96%	16	34.04%	
Men’s Rugby	11	16.18%	57	83.82%	
Men’s Soccer	47	35.61%	85	64.39%	
Men’s Sports Shooting	35	57.38%	26	42.62%	
Men’s Swimming	11	34.38%	21	65.63%	
Men’s Tennis	13	72.22%	5	27.78%	
Men’s Track and Field	48	30.38%	110	69.62%	
Men's Rodeo	57	58.16%	41	41.84%	
Men's Wrestling	45	27.95%	116	72.05%	
Women's Volleyball	42	50.60%	41	49.40%	
Women’s Bowling	14	35.00%	26	65.00%	
Women’s Cross Country	21	50.00%	21	50.00%	
Women’s Golf	7	70.00%	3	30.00%	
Women’s Soccer	44	46.32%	51	53.68%	
Women’s Softball	43	63.24%	25	36.76%	
Women’s Sports Shooting	12	80.00%	3	20.00%	
Women’s Swimming	12	50.00%	12	50.00%	
Women’s Tennis	5	100.00%	0	0.00%	
Women’s Track and Field	29	43.94%	37	56.06%	
Women's Basketball	28	40.58%	41	59.42%	
Scholarship					
Partial	114	19.72%	464	80.28%	*
None	954	42.88%	1271	57.12%	
College Major by Discipline					***
Business	338	36.03%	600	63.97%	
Communication	25	37.31%	42	62.69%	
Education	112	38.10%	182	61.90%	
General Studies	5	31.25%	11	68.75%	
Health Sciences	66	35.48%	120	64.52%	
Humanities	64	36.36%	112	63.64%	
Industrial Technology	113	50.90%	109	49.10%	

Variable	n	% Graduated	n	% Did Not Graduate	X2
Mathematics	34	43.04%	45	56.96%	
Science	140	41.42%	198	58.58%	
Social Sciences	171	35.11%	316	64.89%	
GPA 1st Term					***
A 3.75+	226	54.46%	189	45.54%	
B 3.74 - 2.75	541	52.02%	499	47.98%	
C 2.74 - 1.25	276	28.11%	706	71.89%	
D 0.99 - 1.24	9	9.18%	89	90.82%	
F 0.98 - 0.00	16	5.97%	252	94.03%	
GPA 2nd Term					***
A 3.75+	176	69.84%	76	30.16%	
B 3.74 - 2.75	549	62.32%	332	37.68%	
C 2.74 - 1.25	315	36.89%	539	63.11%	
D 0.99 - 1.24	10	11.11%	80	88.89%	
F 0.98 - 0.00	17	5.33%	302	94.67%	
GPA 3rd Term					
A 3.75+	230	78.77%	62	21.23%	
B 3.74 - 2.75	493	74.25%	171	25.75%	
C 2.74 - 1.25	260	46.76%	296	53.24%	
D 0.99 - 1.24	20	32.26%	42	67.74%	
F 0.98 - 0.00	17	9.24%	167	90.76%	
Credit Hours 1st Term					**
0-3 hours	111	27.21%	297	72.79%	
4-6 hours	16	14.16%	97	85.84%	
6-9 hours	88	25.36%	259	74.64%	
9-12 hours	167	28.60%	417	71.40%	
13-15 hours	329	45.57%	393	54.43%	
15+ hours	357	56.76%	272	43.24%	
Credit Hours 2nd Term					***
0-3 hours	81	22.07%	286	77.93%	
4-6 hours	27	32.14%	57	67.86%	
6-9 hours	65	27.20%	174	72.80%	
9-12 hours	193	35.94%	344	64.06%	
13-15 hours	248	56.11%	194	43.89%	
15+ hours	454	62.45%	273	37.55%	
Credit Hours 3rd Term					**
0-3 hours	129	38.39%	207	61.61%	
4-6 hours	55	51.89%	51	48.11%	
6-9 hours	113	48.50%	120	51.50%	
9-12 hours	175	50.29%	173	49.71%	
13-15 hours	209	69.44%	92	30.56%	
15+ hours	339	78.11%	95	21.89%	
Withdrawal 1st Term					*
0 Withdrawals	1001	43.75%	1287	56.25%	
1 Withdrawals	64	19.16%	270	80.84%	
2 Withdrawals	1	1.82%	54	98.18%	
3 Withdrawals	2	7.69%	24	92.31%	
4 Withdrawals		0.00%	52	100.00%	

Variable	n	% Graduated	n	% Did Not Graduate	X2
5 Withdrawals		0.00%	32	100.00%	
6 Withdrawals		0.00%	8	100.00%	
7 Withdrawals		0.00%	4	100.00%	
8 Withdrawals		0.00%	1	100.00%	
9 Withdrawals		0.00%	3	100.00%	
Withdrawal 2nd Term					*
0 Withdrawals	976	52.25%	892	47.75%	
1 Withdrawals	82	23.30%	270	76.70%	
2 Withdrawals	9	13.04%	60	86.96%	
3 Withdrawals		0.00%	30	100.00%	
4 Withdrawals		0.00%	37	100.00%	
5 Withdrawals		0.00%	28	100.00%	
6 Withdrawals		0.00%	7	100.00%	
7 Withdrawals		0.00%	2	100.00%	
8 Withdrawals		0.00%	2	100.00%	
10 Withdrawals		0.00%	1	100.00%	
Withdrawal 3rd Term					*
0 Withdrawals	937	63.70%	534	36.30%	
1 Withdrawals	72	36.73%	124	63.27%	
2 Withdrawals	9	26.47%	25	73.53%	
3 Withdrawals	1	6.67%	14	93.33%	
4 Withdrawals		0.00%	13	100.00%	
5 Withdrawals		0.00%	20	100.00%	
6 Withdrawals		0.00%	5	100.00%	
7 Withdrawals	1	50.00%	1	50.00%	
9 Withdrawals		0.00%	1	100.00%	
10 Withdrawals		0.00%	1	100.00%	

Note. n = 2,803. *Significant at the 0.05 level. **Significant at the 0.01 level. ***Significant at the 0.001 level.

The analysis revealed a significant relationship between GPA achieved over the first 3 semesters and graduation within 3 years ($p < 0.001$). Student-athletes consistently earning A-range GPAs outperformed their peers in terms of graduation rates during each of the initial three terms, with rates of 54.46% (n = 226), 69.84% (n = 176), and 78.77% (n = 230), respectively. Furthermore, those student-athletes who enrolled in 15 or more credit hours per semester exhibited the highest graduation rates across these three terms, reporting 56.76 % (n = 357) for the first term, 62.45 % (n = 454) for the second term, and 78.11 % (n = 339) for the third term. Additionally, the analysis revealed a significant association ($p <$

0.05) between the number of course withdrawals and graduation for all three terms, with the majority of student-athletes requiring no course withdrawals, representing 43.75%, 52.25%, and 63.70%, respectively.

Results from Binary Logistic Regression

This study aimed to assess how precollege and college experiences predict the academic success of student-athletes at a Midwest NJCAA Division I institution between 2013 and 2018. The following research questions were explored:

R1: Which precollege demographic variable (gender, race or ethnicity, residency, SES, and first-generation status) will significantly predict the 3-year associate degree graduation rates of NJCAA student-athletes?

R2: Which college experience variable (type of sport, college GPA per semester freshman year, major, number of completed credits each term, number of withdrawals per semester, and full or partial scholarship status) will significantly predict the 3-year associate degree graduation rates of NJCAA student-athletes?

Precollege Demographic Variables

There were a total of 2,803 observations in the original dataset, as detailed in Table 4.6. A missing data analysis revealed that 354 observations (12.6%) could not be used in the logistic regression analysis due to missingness. Consequently, the logistic regression analysis for the first research question, which focused on precollege variables, was conducted on 2,449 participants (87.4% of the original dataset). In this analysis, the outcome variable was graduation status (yes/no).

Table 4.6

Selected Cases Included in the Logistic Regression Analysis to Predict Graduation in 3 Years Using Precollege Variables for NJCAA Student-Athlete Cohorts at a 2-Year Institution (n = 2,449)

Unweighted Cases[a]		*n*	%
Selected Cases	Included in Analysis	2,449	87.4
	Missing Cases	354	12.6
	Total	2,803	100.0
Unselected Cases		0	.0
Total		2,803	100.0

*Note***.** The original dataset comprised 2,803 observations. However, due to missing data, 354 observations (12.6%) were excluded from the logistic regression analysis. This resulted in a final sample size of 2,449 participants (87.4% of the original dataset) for the analysis concerning precollege variables, with the outcome variable being graduation status (yes/no).

Table 4.7 presents the adjusted odds ratios (AOR) and their corresponding 95% confidence intervals (CIs) for various predictors of graduation, along with the fit of the logistic regression model as determined by the Hosmer and Lemeshow test and R-squared values. In adjusting for all other variables, the analysis revealed that participants who were not in-state residence had 0.55 times lesser

odds of graduating (95% CI 0.44 – 0.68) versus those who were in-state residence, $p < 0.001$, participants that were Pell Grant eligible had 0.72 times lesser odds of graduating (95% CI 0.59 – 0.87) versus those that were not Pell Grant eligible when controlling for other variables, $p < 0.001$, and for every unit increase in HSGPA, the odds of graduating increased 2.99 times (95% CI 2.52 – 3.54), $p < 0.001$. There were no significant associations between gender (AOR = 1.21, 95% CI 0.99 – 1.48, p = 0.06) or race (AOR = 0.84, 95% CI 0.67 – 1.05, p = 0.12), with graduation, when controlling for other variables.

The Hosmer and Lemeshow test is a statistical test used to assess how well a logistic regression model fits the observed data. In our context, the test produced a score of 0.014 (X2 =

Table 4.7

The Predictive Effects of Precollege Academic and Demographic Variables on Graduation in 3 Years for NJCAA Student-Athlete Cohorts from 2013-2018 at a 2-Year Institution (n = 2,449)

Variable	Sig.		Exp(B)	95 C.I. Lower	95 C.I. Upper
Gender					
Male#					
Female	0.061		1.211	0.991	1.479
Race					
White #					
Black	0.118		0.839	0.674	1.045
Residency					
In-State #					
Out-of-State	<0.001	**	0.548	0.440	0.682
SES/Pell Grant					
Not Eligible #					
Pell Grant Eligible	<0.001	**	0.717	0.593	0.867
HSGPA	<0.001		2.988	2.524	3.536
Constant	<0.001		0.045		
-2 Log Likelihood	2842.685				
Cox and Snell R^2	0.164				
Nagelkerke R^2	0.222				
Hosmer & Lemeshow Test	0.014				
Chi-square	19.222				

Note. *n* = 2,449. *Significant at the 0.05 level. **Significant at the 0.01 level. ***Significant at the 0.001 level; 3) Exp(B) = odds ratio, 95 CI – 95 confidence interval, Cox and Snell R2 = 0.16, Nagelkerke R2 = 0.22, Hosmer and Lemeshow, X2(8) = 19.22, p = 0.01, * statistically significant, p < 0.05 of model goodness-of-fit: the Cox and Snell R square and the Nagelkerke R squared. These statistics provide insights into how much of the variation in the outcome variable (graduation within 3 years) is explained by the model. In this case, the model as a whole explains between 0.164 (Cox and Snell R square) and 0.22 (Nagelkerke R squared) of the variance in graduation. These values are relatively low, suggesting that while the model provides some explanatory power, there are likely other unaccounted-for factors influencing graduation outcomes as well.

19.22, df = 8), which indicated the final model's estimates fit the data at an acceptable level, as the value was greater than 0.05. In other words, the model's predictions align reasonably well

with the actual outcomes, indicating that it is a suitable model for explaining the relationship between the independent variables and the likelihood of graduation within 3 years. Additionally, the statement mentions two measures

College Experience Variables

As detailed in Table 4.8, the initial missing data analysis revealed that out of the original dataset comprising 2803 observations, a significant portion, n = 1045 (37.3%), could not be utilized for the logistic regression analysis due to missing data. This led to a total of 1,758 participants (62.7 % of the original dataset).

Table 4.8

Selected Cases Included in the Logistic Regression Analysis to Predict Graduation in 3 Years Using Precollege Variables for NJCAA Student-Athlete Cohorts at a 2-Year Institution (n = 1,758)

Unweighted Cases[a]		*n*	%
Selected Cases	Included in Analysis	1758	62.7
	Missing Cases	1045	37.3
	Total	2803	100.0
Unselected Cases		0	.0
Total		2803	100.0

The next logistic regression analysis was associated with RQ2 and focused on parameters relevant during college and subsequent graduation. When adjusting for all variables in the simultaneous model and using football players as a reference, it was found that cheer team had 2.12 times higher odds of graduating (95% CI 1.24 – 3.61, p = 0.006), men's basketball had 2.39 times higher odds of graduating (95% CI 1.09 – 5.22, p = 0.029), men's baseball had 2.73 times higher odds of graduating (95% CI 1.60 – 4.66, p < 0.001), men's cross country had 2.72 times higher odds of graduating (95% CI 1.35 – 5.50, p = 0.005), men's golf had 3.57 times higher odds of graduating (95% CI 1.414 – 9.07, p =

0.007), men's tennis had 9.23 times higher odds of graduating (95% CI 1.80 – 47.46, p = 0.008), men's track and field had 2.93 times higher odds of graduating (95% CI 1.65 – 5.22, $p < 0.001$), rodeo had 3.18 times higher odds of graduating (95% CI 1.65 – 6.13, $p < 0.001$), volleyball had 2.71 times higher odds of graduating (95% CI 1.29 – 5.68, p = 0.008), women's basketball had 3.33 times higher odds of graduating (95% CI 1.39 – 8.00, p = 0.007), women's softball had 2.37 times higher odds of graduating (95% CI 1.14 – 4.91, p = 0.02), women's soccer had 2.39 times higher odds of graduating (95% CI 1.17 – 4.87, p = 0.02), and women's track and field had 2.74 times higher odds of graduating (95% CI 1.37 – 5.50, p = 0.005). Those with a partial athletic scholarship had 0.62 times lesser odds of graduating (95% CI 0.44 – 0.87) when compared to those with no scholarship and when controlling for other variables, p = 0.005. Participants in communication academic programs had 0.47 times lesser odds of graduating (95% CI 0.22 – 0.99) versus participants in those in business programs, p = 0.046. For every unit increase in credits during the first semester, the odds of graduating increased 1.04 times (95% CI 1.01 – 1.07), p = 0.01. Also, in the first semester, for every class withdrawn from, the odds of graduating decreased 0.67 times (95% CI 0.48 – 0.92), p = 0.01. For every unit increase in GPA during the second semester, the odds of graduating increased 1.55 times (95% CI 1.31 – 1.82), $p < 0.001$. During the third semester, for every unit increase in credits taken, the odds of graduating increased 1.05 times (95% CI 1.03 – 1.08, $p < 0.001$). Also, during the third semester, for every unit increase in GPA, the odds of graduating increased 1.71 times (95% CI 1.49 – 1.96, $p <$ 0.001. Finally, during the third semester, for every class withdrawn from, the odds of graduating decreased 0.77 times (95% CI 0.62 – 0.97), p = 0.02. All other parameters were not significantly associated with graduation, $p > 0.05$. See Table 4.9 for all of the adjusted

odds ratios with 95% confidence intervals associated with the second model.

In advancing the logistic regression analysis, I introduced a third step, incorporating a combined block of both college experience and precollege experience variables. This comprehensive approach is detailed in Table 4.10, which outlines the dataset's composition after the missing data analysis. The analysis revealed that a significant portion of the data, 1,241 observations (44.3%), was unsuitable for logistic regression due to missingness. Consequently, the analysis proceeded with a reduced sample of 1,562 participants, representing 55.7% of the original dataset. This refined dataset was used to perform the logistic regression analysis, with student graduation as the outcome variable.

Table 4.9

Logistic Regression Analysis Predicting NJCAA Student-Athlete Graduation in 3 Years using College Experience Variables

Variable	Sig.		Exp(B)	95 C.I.			
				Lower	Upper		
Sport							
Cheer (Co-ed)	.006*			1.24	3.61		
Dance (Co-ed)	.006		2.119	0.84	4.39		
Men's ESPOR	.125		1.916	0.04	4.394		
Men's Football Referent	.867		1.357	0.038	48.878		
Marching Band	.061		1.607	0.979	2.639		
Men's Basketball	.029*		2.387	1.091	5.223		
Men's Bowling	.091		1.990	.896	4.418		
Men's Baseball	<.001*		2.729	1.598	4.659		
Men's Cross Country	.005*		2.721	1.345	5.502		
Men's Golf	.007*		3.574	1.408	9.073		
Men's Rugby	.920		.954	.380	2.398		
Men's Soccer	.070		1.781	.953	3.327		
Men's Sports Shooting	.415		1.352	.654	2.796		
Men's Swimming	.185		2.288	.673	7.783		
Men's Tennis	.008*		9.233	1.796	47.458		
Men's Track and Field	<.001*		2.931	1.646	5.221		
Men's Rodeo	<.001*		3.180	1.650	6.131		
Men's Wrestling	.122	.122	1.557	1.558	2.726	.889	2.726
Women's Volleyball	.008*		2.710	1.292	5.684		

Women's Basketball	.007*	3.328	1.385	7.996
Women's Bowling	.232	1.889	.666	5.356
Women's Cross Country	.100	2.304	.853	6.222
Women's Golf	.275	2.395	.499	11.499
Women's Softball	.021*	2.367	1.141	4.912
Women's Soccer	.017*	2.386	1.168	4.872
Women's Sports Shooting	.998	1777178656.175	.000	.
Women's Swimming	.582	1.352	.461	3.964
Women's Tennis	.999	842657687.982	.000	.
Women's Track and Field	.005*	2.740	1.365	5.503
Athletic Scholarship	.005*	.619	.443	.866
College Major by Discipline				
Business Referent	.255			
Communication	.046*	.467	.221	.986
Education	.545	1.141	.744	1.750
General Studies	.911	1.120	.151	8.288
Health Sciences	.906	.969	.578	1.624
Humanities	.555	.858	.515	1.427
Industry	.156	1.421	.874	2.310
Mathematics	.078	2.013	.924	4.383
Science	.328	1.213	.824	1.785
Social Sciences	.641	1.088	.764	1.549
Credit Hrs 1st Term	.012*	1.041	1.009	1.074
GPA 1st Term	.060	1.154	.994	1.340
Withdrawal 1st Term	.014*	.668	.484	.920
Credit Hrs 2nd Term	.222	1.021	.987	1.056
GPA 2nd Term	<.001*	1.545	1.311	1.822
Withdrawal 2nd Term	.083	.787	.600	1.032
Credit Hrs 3rd Term	<.001*	1.053	1.028	1.079
GPA 3rd Term	<.001*	1.710	1.491	1.961
Withdrawal 3rd Term	.023*	.773	.620	.965
Constant	<.001	.014		
-2 Log Likelihood	1728.795			
Cox and Snell R^2	0.314			
Nagelkerke R^2	0.423			
Hosmer & Lemeshow Test	0.403			
Chi-square	8.322			

Variable	Sig.	Exp(B)	95 C.I.	
			Lower	Upper

Note. n = 1,758.*Significant at the 0.05 level. **Significant at the 0.01 level. ***Significant at the 0.001 level. Exp(B) = odds ratio, 95% CI – 95% confidence interval, Cox and Snell R2 = 0.31, Nagelkerke R2 = 0.42, Hosmer and Lemeshow, X2(8) = 8.32, p = 0.40, * statistically significant, $p < 0.05$.

Table 4.10

Selected Cases Included in the Logistic Regression Analysis to Predict Graduation in 3 Years Using Precoll and College Variables for NJCAA Student-Athlete Cohorts at a 2-Year Institution (n = 1,562)

Unweighted Cases[a]		*n*	%
Selected Cases	Included in Analysis	1,562	55.7
	Missing Cases	1,241	44.3
	Total	2,803	100.0
Unselected Cases		0	.0
Total		2,803	100.0

Table 4.11 presents the results of the logistic regression analysis, comparing the graduation odds of various groups of student-athletes, with football players serving as the reference group. Controlling for other variables in the model, the analysis found significant differences in the likelihood of graduating among different sports. Men's basketball players had 2.54 times higher odds of graduating (95% CI 1.10 – 5.86, $p = 0.02$), men's baseball players had 3.31 times higher odds of graduating (95% CI 1.73 – 6.35, $p < 0.001$), men's cross country players had 3.80 times higher odds of graduating (95% CI 1.74 – 8.29, $p < 0.001$), men's golf players had 3.02 times higher odds of graduating (95% CI 1.10 – 8.29, $p = 0.03$), men's track and field players had 3.98 times higher odds of graduating (95% CI 2.08 – 7.63, $p < 0.001$), rodeo players had 2.56 times higher odds of graduating (95% CI 1.19 – 5.48, $p = 0.016$), wrestling players had 1.81 times higher odds of graduating (95% CI 1.003 – 3.25, $p = 0.049$), and women's soccer players had 2.84 times higher odds of graduating (95% CI 1.03 – 7.80, $p = 0.044$). Partial scholarship players had 0.65 times lesser odds of graduating (95% CI 0.45 – 0.95) versus those with no scholarship when controlling for other variables, $p = 0.025$. For every unit increase in HSGPA, the odds of graduating increased 1.41 times (95% CI 1.05 – 1.88) when controlling for other variables, $p = 0.02$. First-generation players had 0.71 times lesser odds of graduating (95% CI 0.55 – 0.93) versus other players when controlling for other

variables, $p = 0.014$. For every unit increase in course credits for the first semester, the odds of graduating increased 1.05 times (95% CI 1.01 – 1.08) when controlling for other variables, $p = 0.009$. For every unit increase in class withdrawn from in the first semester, the odds of graduating decreased 0.64 times (95% CI 0.44 – 0.92) when controlling for other variables, $p = 0.017$. For every unit increase in GPA during the second semester, the odds of graduating increased 1.40 times (95% 1.16 – 1.68) when controlling for other variables, $p < 0.001$. For every unit increase in credit during the third semester, the odds of graduating increased 1.06 times (95% CI 1.03 – 1.09) when controlling for other variables, $p < 0.001$. For every unit increase in GPA during the third semester, the odds of graduating increased 1.59 times (95% CI 1.37 – 1.84) when controlling for other variables, $p < 0.001$. Finally, for every unit increase in classes withdrawn from during the third semester, the odds of graduating decreased 0.76 times (95% CI 0.60 – 0.96) when controlling for other variables, $p = 0.02$. All of the other parameters did not have a significant association with graduation when controlling for other variables, $p > 0.05$.

The comprehensive logistic regression model, encompassing all variables, yielded a Hosmer and Lemeshow test result of 0.46 ($X^2 = 7.71$, $df = 8$), signifying a satisfactory fit of the data. In totality, this model accounted for approximately 33.00% (Cox and Snell R square) and 45.00% (Nagelkerke R squared) of the variance in student-athlete graduation within 3 years. Notably, 10 independent variables demonstrated unique and statistically significant contributions to the final model, including first-generation status, partial scholarship, participation in certain sports (baseball, cross country, track and field, rodeo, and soccer), HSGPA, second-semester GPA, and third-semester GPA and degree hours.

Table 4.12 provides a consolidated view of the significance of various predictor

variables across the three distinct logistic regression models. These models were developed to understand the factors that contribute to graduation outcomes. Each model incrementally incorporates different sets of variables to assess their individual and combined impact on the likelihood of student graduation. The presence of a "Y" indicates that the variable was found to be a significant predictor in that specific model. This systematic approach allows for a nuanced analysis of how factors such as demographics, academic performance, and enrollment behaviors correlate with graduation rates within the studied population. The table is a visual display of which variables consistently demonstrate significance across models, thereby offering insights into the robustness of their predictive power.

Table 4.11

Comprehensive Logistic Regression Analysis Predicting NJCAA Student-Athlete Graduation in 3 Years using Precollege and College Experience Variables

Variable/Level	AOR (95 CI)	p-value
Sport Played		
Men's Football	Referent	-
Cheer (Co-ed)	1.84 (0.90 – 3.77)	0.10
Dance (Co-ed)	1.46 (0.51 – 4.20)	0.48
Men's ESPOR	0.99 (0.04 – 26.70)	1.00
Marching Band	1.37 (0.74 – 2.55)	0.32
Men's Basketball	2.54 (1.10 – 5.86)	0.03*
Men's Bowling	1.88 (0.81 – 4.40)	0.14
Men's Baseball	3.31 (1.73 – 6.35)	< 0.001*
Men's Cross Country	3.80 (1.74 – 8.29)	< 0.001*
Men's Golf	3.02 (1.10 – 8.29)	0.03*
Men's Rugby	0.86 (0.25 – 2.96)	0.81
Men's Soccer	1.75 (0.86 – 3.56)	0.13
Men's Sports Shooting	1.00 (0.46 – 2.18)	0.99
Men's Swimming	2.42 (0.49 – 12.05)	0.28
Men's Tennis	5.19 (0.86 – 31.15)	0.07
Men's Track and Field	3.98 (2.08 – 7.63)	< 0.001*
Variable/Level	AOR (95 CI)	p-value
Men's Rodeo	2.56 (1.19 – 5.48)	0.016*

Variable/Level	AOR (95 CI)	p-value
Men's Wrestling	1.81 (1.003 – 3.25)	0.49
Women's Volleyball	2.05 (0.78 – 5.40)	0.15
Women's Basketball	2.76 (0.90 – 8.44)	0.08
Women's Bowling	1.37 (0.41 – 4.60)	0.61
Women's Cross Country	2.50 (0.67 – 9.28)	0.17
Women's Golf	2.83 (0.39 – 20.58)	0.31
Women's Softball	1.42 (0.54 – 3.69)	0.48
Women's Soccer	2.84 (1.03 – 7.80)	0.04*
Women's Sports Shooting	-	-
Women's Swimming	1.12 (0.30 – 4.17)	0.86
Women's Tennis	-	-
Women's Track and Field	2.46 (0.93 – 6.53)	0.07
Academic Program		
Business	Referent	-
Communication	0.46 (0.21 – 1.04)	0.06
Education	1.27 (0.80 – 2.04)	0.32
General Studies	2.17 (0.17 – 27.56)	0.55
Health Sciences	0.92 (0.52 – 1.62)	0.76
Humanities	0.84 (0.49 – 1.44)	0.53
Industry	1.45 (0.86 – 2.45)	0.16
Mathematics	1.83 (0.80 – 4.22)	0.16
Science	1.12 (0.73 – 1.71)	0.60
Social Sciences	1.14 (0.77 – 1.68)	0.52
Gender		
Male	Referent	-
Female	1.14 (0.63 – 2.07)	0.67
Race		
White	Referent	-
All others	0.79 (0.56 – 1.12)	0.19
Pell Grant Eligibility		
No	Referent	-
Yes	0.87 (0.65 – 1.16)	0.34
First Generation Student		
No	Referent	-
Yes	0.71 (0.55 – 0.93)	0.01*
Athletic Scholarship		
No Scholarship	Referent	-
Partial	0.65 (0.45 – 0.95)	0.03*
Residency		
In-state	Referent	-
All others	0.84 (0.59 – 1.20)	0.34
HSGPA	1.41 (1.05 – 1.88)	0.02*
Variable/Level	AOR (95 CI)	p-value

Variable/Level	AOR (95 CI)	p-value
Credit Hrs 1st Term	1.05 (1.01 – 1.08)	0.009*
GPA 1st Term	1.10 (0.93 – 1.30)	0.25
Withdrawals 1st Term	0.64 (0.44 – 0.92)	0.02*
Credit Hrs 2nd Term	1.03 (0.99 – 1.07)	0.10
GPA 2nd Term	1.40 (1.16 – 1.68)	< 0.001*
Withdrawals 2nd Term	0.82 (0.62 – 1.10)	0.18
Credit Hrs 3rd Term	1.06 (1.03 – 1.09)	< 0.001*
GPA 3rd Term	1.59 (1.37 – 1.84)	< 0.001*
Withdrawals 3rd Term	0.76 (0.60 – 0.96)	0.02*

Note. AOR – adjusted odds ratio, 95 CI – 95% confidence interval, Cox and Snell R2 = 0.33, Nagelkerke R2 = 0.45, Hosmer and Lemeshow, X2(8) = 7.71, $p = 0.46$, * statistically significant, $p < 0.05$, the combined impact on the likelihood of student graduation. The presence of a "Y" indicates that the variable was found to be a significant predictor in that specific model. This systematic approach allows for a nuanced analysis of how factors such as demographics, academic performance, and enrollment behaviors correlate with graduation rates within the studied population. The table is a visual display of which variables consistently demonstrate significance across models, thereby offering insights into the robustness of their predictive power.

To determine which of the three logistic regression models was the most reliable or strongest, the researcher compared their R-squared values – specifically, the Nagelkerke R-squared, which is a modified version of the Cox and Snell R-squared and adjusts for the maximum possible value, making it a more comprehensive measure.

Model 1: Cox and Snell R-square = 0.164, Nagelkerke R-square = 0.22

Model 2: Cox and Snell R-square = 0.31, Nagelkerke R-square = 0.42

Model 3: Cox and Snell R-square = 0.33, Nagelkerke R-square = 0.45

The R-squared value represents the proportion of variance in the dependent variable that is predictable from the independent variables. A higher R-squared value generally indicates a model with better explanatory power.

Based on this criterion, Model 3 appears to be the strongest or most reliable. It has the highest Nagelkerke R-squared value of 0.45, suggesting that it accounts for approximately 45% of the variance in student-athlete graduation within 3 years. This model

is comprehensive, encompassing all variables, and its ability to explain a higher percentage of the variance indicates that it effectively captures the factors influencing on time graduation outcomes.

In contrast, Model 1, with a Nagelkerke R-squared of 0.22, and Model 2, with a Nagelkerke R-squared of 0.42, demonstrate lower explanatory power compared to Model 3. While Model 2 is more robust than Model 1, it still falls short of the explanatory capability demonstrated by Model 3. Therefore, Model 3, with its higher R-squared values and inclusion of a wider range of variables, is deemed to provide a more reliable and comprehensive understanding of the factors affecting NJCAA student-athlete on time graduation rates.

Table 4.12

Summary of the Three Logistic Regression Analyses Predicting NJCAA Student-Athlete Graduation in 3 Years

Variables	Model 1 Precollege Demographic and Academic Variable	Model 2 College Experience Variable	Model 3 Precollege and College Experience Variable
Gender	Y		
Race	Y		
Residency	Y		
Pell Grant Eligibility	Y		
HSGPA	Y		Y
First Generation Status	Y		Y
Sport		Y	Y
Scholarship		Y	Y
College Major			
GPA 1st Term			
GPA 2nd Term		Y	Y
GPA 3rd Term		Y	Y
Degree Hours 1st Term		Y	Y
Degree Hours 2nd Term			
Degree Hours 3rdTerm		Y	Y
Ws 1st Term		Y	Y
Ws 2nd Term			
Ws 3rd Term		Y	Y

Summary

This chapter provides an in-depth analysis of the variables influencing NJCAA student-athlete graduation within a 3-year period at a 2-year institution. Through a combination of descriptive analysis, cross-tabulations, and logistic regression, the study examines a range of precollege demographic and college experience variables. In conclusion, this study has revealed significant associations between a range of precollege demographic, academic, and college experience variables and the likelihood of student-athlete graduation within a 3-year timeframe. Notable findings include the influence of gender, race, residency, first-generation status, Pell Grant eligibility, HSGPA, academic major, sport participation, scholarship status, GPA over the first three semesters, and the number of course withdrawals on graduation outcomes. Regarding RQ1, female student-athletes and those with higher HSGPAs demonstrated higher graduation rates, while disparities based on race and residency were evident. Student-athletes from out-of-state were less likely to graduate than in-state student-athletes. Student-athletes from low SES backgrounds, as determined by Pell Grant eligibility, were less likely to graduate than those from higher SES backgrounds. This comprehensive analysis underscores the multifaceted nature of student-athlete graduation, emphasizing the need for tailored support and interventions to enhance timely graduation outcomes across diverse academic disciplines and athletic pursuits.

RQ2 inquired about college experience variables and student-athlete success. Academic majors played a substantial role, with certain majors showing higher graduation rates. Additionally, GPAs achieved over the first three semesters and course withdrawal rates significantly impacted graduation likelihood. Participation in several sports, including cheer,

men's basketball, baseball, cross country, golf, tennis, track and field, rodeo, volleyball, women's basketball, softball, soccer, and women's track and field, had a higher likelihood of graduating compared to football players. Notably, golf, tennis, and rodeo were significant positive predictors of graduation. In contrast, those on partial athletic scholarships, as well as students enrolled in communication academic programs, faced lower odds of graduating than their counterparts with no scholarship and those in business programs, respectively. Academic performance indicators such as GPA increases in the second and third semesters were positively correlated with graduation chances. Additionally, enrolling in more degree hours across the first three semesters boosted graduation prospects. Conversely, withdrawing from courses during these semesters was linked to reduced odds of graduating, underscoring the importance of consistent academic engagement.

In the third model, by integrating both college and precollege experience variables, the results revealed significant variations in graduation odds among different sports groups. Notably, men's basketball, baseball, cross country, golf, track and field, rodeo, wrestling, and women's soccer players exhibited higher odds of graduating compared to football players. The analysis also found that partial scholarship players had lower odds of graduating, while HSGPA, second and third-semester GPAs, and third-semester degree hours positively influenced graduation odds. First-generation status and increased course withdrawals were associated with lower graduation odds. Ten independent variables, including first-generation status, partial scholarship, participation in certain sports, HSGPA, and specific semester GPAs and degree hours, made statistically significant contributions to predicting graduation within 3 years.

Chapter 5 culminates the study by synthesizing the research findings, with a focus on

the influence of precollege and college variables on the timely graduation of community college student-athletes. Additionally, this chapter presents practical recommendations derived from the study's results, proposing strategies to enhance academic success on community college campuses. It also outlines suggestions for future research, pinpointing specific areas that warrant further investigation to deepen the understanding of the variables that predict the academic success of student-athletes on community college campuses.

Chapter 5: Discussion

Despite the fact that 2-year community schools were established to make obtaining a college degree more accessible to nontraditional students, six out of 10 community college students do not complete their degrees (Skinner et al., 2022). While previous research has extensively explored predictors of student success, the applicability of these predictors to NJCAA student-athletes' academic achievements remains inconclusive. Distinct from the typical college student, student-athletes navigate unique challenges due to their dual roles on campus and are often considered a non-traditional student group (Beron & Piquero, 2016; Cooper et al., 2017). This study aimed to fill this gap by investigating a select group of previously established precollege demographics (i.e., gender, race or ethnicity, residency, socioeconomic status, and status as a first-generation college student) and select college experience variables (i.e., sport, college GPA per semester freshman year, major, number of completed credits each term, number of withdrawals per semester, and full or partial scholarship status) for NJCAA Division I student-athletes enrolled at a community college in the Midwest United States. Deidentified archival data were collected to explore how these variables interplay and contribute to the academic success of student-athletes, specifically those enrolled in an NJCAA Division I institution. Utilizing logistic regression models, this chapter will discuss the noteworthy findings of the study and policy implications, and provide recommendations for future research in this area.

Implications of Findings

This section presents a discussion of the student-athlete characteristics related to graduation within 3 years. Relevant and existing research will guide the discussion, and relevant empirical results from the present study will provide answers to both RQ 1 and 2.

Precollege Variables

R1: Which precollege demographic variable (gender, race or ethnicity, residency, SES, and first-generation status) will significantly predict the 3-year associate degree graduation rates of NJCAA student-athletes?

Gender. In this study, the analysis revealed that gender was not a significant predictor of 3-year graduation rates for NJCAA student-athletes. Specifically, there were no significant associations between gender (AOR = 1.21, 95% CI 0.99 – 1.48, $p = 0.06$) and graduation outcomes when controlling for other variables. This finding contrasts with previous research on gender disparities in academic performance, particularly at 4-year institutions. Studies like those by Lee and Sten (2017) at a Division II NCAA institution and Rankin et al. (2016) across NCAA Divisions I, II, and III have consistently shown that female student-athletes often achieve higher GPAs than their male counterparts. Further, NCAA data from 2019 to 2022 highlight a significant difference in Division I student-athletes' graduation success rates, with females achieving a 95% GSR compared to 85% for males and the broader student body's federal rate. Despite these precedents, the current study's findings at a 2-year community college diverge from this established pattern. Initially, bivariate analyses suggested that female student-athletes graduated at a rate 16 times higher than males, but this difference was not statistically significant in the final logistic regression model. This outcome indicates that, after accounting for precollege academic and college experiences, these factors play a more critical role than gender in

influencing graduation rates. This aligns with literature suggesting better college preparedness among female students (Johnson et al., 2013; Kuh et al., 2007; Snyder et al., 2011). However, the lack of significant gender differences in this context highlights the need for further examination of gender as a variable in predicting academic success among NJCAA student-athletes, suggesting that the dynamics at 2-year institutions might differ from those at 4-year institutions.

Residency and SES. This study identified residency and SES as significant predictors of academic success among NJCAA student-athletes. The analysis showed that in-state student-athletes had a graduation rate 20.87% higher than their out-of-state counterparts. Furthermore, Pell Grant eligibility, a proxy for lower SES, was inversely associated with graduation likelihood, with Pell Grant-eligible student-athletes being 17.65% less likely to graduate within 3 years. These findings resonate with Autry's (2010) research, which reported that 44.04% of Pell Grant-eligible student-athletes did not graduate from the 4-year NCAA Division II institution and that out-of-state student-athletes were 0.487 times less likely to graduate than in-state student-athletes ($p < 0.01$).

In comparison to previous research, the significant role of residency and SES in academic success among student-athletes at 4-year institutions has been well-documented. Pascarella and Terenzini (2005) found that students from lower SES backgrounds at 4-year institutions faced multiple challenges, including limited resources and inadequate academic preparation, leading to lower academic performance and graduation rates. This study extends those findings to the NJCAA context, emphasizing the impact of residency and SES on graduation rates.
The literature had not previously addressed the predictive significance of residency status for student-athletes, prompting further inquiry into whether out-of-state athletes are less academically prepared or face greater challenges adjusting to a new environment. SES has been

identified as a pivotal factor influencing the success of student-athletes. According to studies by Parker et al. (2021), higher SES is correlated with increased access to resources, such as private coaching and better-equipped facilities, which can enhance athletic performance and academic opportunities for student-athletes. Conversely, O'Connell and Eide (2017) highlight that student-athletes from lower SES backgrounds face challenges such as limited access to quality training and educational support, potentially hindering their athletic and academic trajectories. Furthermore, Saxe et al. (2019) discuss the role of SES in academic readiness, finding that student-athletes from higher SES families tend to enter college with a stronger educational foundation, giving them an advantage in both their athletic and academic pursuits. Collectively, these studies suggest that SES is a significant determinant of the opportunities and barriers that student-athletes encounter, which in turn affects their success in sports and education. Thus, this study contributes to the understanding of how residency and SES factors uniquely affect the academic outcomes of NJCAA student-athletes. It draws parallels with similar trends noted in 4-year institutions, highlighting the broader applicability of these factors in shaping academic success across different educational settings.

Race and Ethnicity. In this study, the influence of race and ethnicity on the academic success of NJCAA student-athletes was found to be non-significant, similar to Autry's (2010). Initial bivariate analyses suggested that Black student-athletes graduated at a rate 23.40% lower than their White counterparts. However, race did not emerge as a significant predictor in the logistic regression model when other factors were considered. This outcome contrasts with previous research that highlighted race as a determinant in academic success, suggesting a more complex interaction of variables in the NJCAA context.

The current study did not specifically examine how SES intersects with race and ethnicity, a gap that warrants further investigation. Studies like those by Fuller et al. (2016) have highlighted the potential impact of stereotypes on the academic engagement of African American student-athletes, which could be a contributing factor to academic disparities. Additionally, Contreras (2011) and Sparkman et al. (2012) noted the challenge of lower academic preparedness among Black student-athletes from lower SES backgrounds.

These findings underscore the complexity of factors influencing student-athlete academic success, which extends beyond race and ethnicity to include SES, cultural, and institutional variables. The lack of significant findings regarding race in this study signals the need for broader, more inclusive approaches in future research. It also emphasizes the importance of creating diverse and supportive educational environments that cater to the nuanced needs of student-athletes from varied backgrounds, recognizing the multifaceted nature of academic success in sports and education.

HSGPA. In this study, it was found that for every unit increase in HSGPA, the odds of graduating increased by 1.41 times (95% CI 1.05 – 1.88), a significant finding when controlling for other variables ($p = 0.02$). This result diverges from Autry's findings and aligns with Astin's (1993) assertion that HSGPA is the "single strongest predictor of degree completion" (p. 193) having a correlation coefficient of 0.29. This correlation reinforces the importance of HSGPA in forecasting college academic success, consistent with prior research. Further supporting this notion, studies by Kuh et al. (2007) and Gipson (2018) also identified positive correlations between HSGPA and various collegiate success indicators. Gipson's meta-analysis particularly highlighted that high school grades could explain 25% to 35% of the variance in predicting first-year college grades. These findings collectively suggest that while HSGPA plays a crucial role as

an indicator of academic potential, it is not the only factor influencing future academic achievements. This insight emphasizes the multifaceted nature of academic success in higher education, where HSGPA serves as a significant, yet not exclusive, predictor.

First-Generation Status. The current study revealed that first-generation NJCAA student-athletes are significantly less likely to graduate compared to their non-first-generation counterparts. Specifically, these student-athletes were found to be 0.71 times less likely to graduate, a finding that holds statistical significance ($p = 0.014$) when controlling for other variables. This result supports the findings of Johnson et al. (2018) and Davis (2020), who both reported that first-generation student-athletes at 4-year institutions typically encounter unique challenges in their academic paths, leading to lower graduation rates. The lower graduation odds for first-generation players, as demonstrated in recent studies, point to broader systemic challenges faced by this group. These challenges include navigating the college environment without the familial guidance and support systems available to their peers, which can lead to feelings of isolation and difficulties in leveraging campus resources. Lee and Sten (2017) noted the additional hurdles in cultural and academic integration that first-generation students face. Garcia (2021) further pointed out that such students often bear increased financial pressures, resulting in higher external work commitments alongside their athletic and academic responsibilities.

These factors collectively underscore the unique challenges encountered by first-generation student-athletes, emphasizing the need for specific support and intervention strategies. Addressing these needs is crucial for enhancing their overall college experience and boosting their graduation rates, thereby ensuring equitable educational opportunities for all student-athletes, regardless of their familial background.

College Experience Variables

R2: Which college experience variable (type of sport, college GPA per semester freshman year, major, number of completed credits each term, number of withdrawals per semester, and scholarship status) will significantly predict the 3-year associate degree graduation rates of NJCAA student-athletes? College experience variables such as college GPA, number of withdrawals per term, number of credit hours per term, sport, and major were the only significant predictors of the 3-year associate degree graduation rates of NJCAA student-athletes at this particular institution.

Sport. This study found that participation in specific sports significantly influences the graduation rates of NJCAA student-athletes. Notably, athletes in sports like men's basketball, cross country, golf, track and field, wrestling, and women's soccer demonstrated higher odds of graduating compared to those in other sports. This trend was particularly pronounced in individual sports (golf, cross country, track and field, tennis, both female and men), supporting Adler and Adler's (1985) view on the distinct demands and cultures associated with different sports.

Consistent with the research of Huntrods et al. (2017) and Wylleman et al. (2019), participants in individual sports often excel academically, potentially due to enhanced time management skills. In contrast, team sports provide opportunities for social interaction and team unity, factors linked to overall well-being and satisfaction (Santos et al., 2020; Tinto, 2013). On the other hand, individual sports foster a sense of self-reliance and personal achievement, contributing positively to the psychosocial well-being of athletes (Wylleman et al., 2019). These findings suggest that the type of sport, be it team-based or individual, can influence not only academic success but also social and psychosocial well-being. Autry's findings further reinforce

this perspective, indicating that student-athletes in low-revenue sports, such as golf, are more likely to graduate than those in high-revenue sports. Other non-revenue sports like volleyball, cross country, and track and field also showed tendencies toward significance in graduation rates.

Balancing the demands of both education and sports often places student-athletes under increased stress and anxiety (Santos et al., 2020). Managing rigorous academic coursework alongside intense training and competition can pose mental health challenges. However, the provision of comprehensive support systems, including mental health services, counseling, and stress management resources, is critical in supporting the psychosocial well-being of student-athletes (Egan, 2019).

Scholarship. This study revealed a notable aspect of athletic scholarships in the academic trajectory of NJCAA student-athletes. Specifically, at this 2-year institution, student-athletes on partial scholarships were found to have 0.65 times lesser odds of graduating compared to those without scholarships, a significant result when controlling for other variables ($p = 0.025$). This finding might reflect the emphasis on athletic rather than academic competence in recruitment processes for partial scholarship recipients. The financial strain due to partial scholarships not covering the full cost of education, coupled with time constraints from balancing athletic and academic commitments, could adversely impact academic performance. Autry's (2010) findings further contextualize this issue, suggesting that the type of athletic aid was not a significant predictor of college success at NCAA Division II institutions. Contrasting with previous research, such as Milton et al. (2012) and Gaston-Gayles (2015), which indicated mixed effects of athletic scholarships on academic outcomes, this study suggests a more nuanced impact. While scholarship recipients typically demonstrate lower initial academic performance,

retention and graduation rates are often higher, as per Miller et al. (2019). However, this study's results highlight the unique challenges faced by partial scholarship recipients at NJCAA institutions, where full scholarships are rare and the dual demands of athletics and academics are significant.

The implications of these findings are significant for recruitment strategies and collegiate success. The challenge lies in balancing athletic commitments with academic obligations, especially for student-athletes on partial scholarships. This area merits further exploration to better understand and address the academic needs of student-athletes, ensuring that athletic scholarships enhance rather than hinder their educational journey.

Major. In this study, a significant relationship was identified between the choice of academic major and the graduation likelihood of NJCAA student-athletes. Notably, student-athletes majoring in communication-related programs (e.g., journalism, English, broadcasting, digital mass communication) exhibited 0.47 times lesser odds of graduating compared to those in business programs (95% CI 0.22 – 0.99, $p = 0.046$). This finding stands in contrast to previous research, which often associates major choices aligned with personal interests with better academic outcomes for student-athletes, as noted by Gipson (2018) and Santos et al. (2020). Similarly, Stewart et al. (2015) observed that majors fitting individual interests tend to enhance retention rates.

The results from this study are challenging to directly compare with other studies due to methodological differences in categorizing academic majors. Nonetheless, they align with Pascarella and Terenzini's (2005) observations that technical fields generally see higher graduation rates. In this context, student-athletes enrolled in industrial technology programs,

including disciplines like diesel, electrical, and automation technologies, engineering, logistics, and industrial mechanics, showed a greater likelihood of graduating.

These findings highlight the importance of considering the academic major in the context of student-athletes' unique challenges, such as the additional academic load and time commitments that some majors entail. The lower graduation rates in communication programs versus business and technical fields suggest that the nature and demands of the major can significantly impact academic success. This area warrants further longitudinal study to better understand the interplay between student-athletes' major selection and their degree completion, taking into account their rigorous sports schedules and related commitments.

College GPA. In this study, a pivotal finding emerged regarding the influence of college GPA on the graduation likelihood of NJCAA student-athletes. Contrary to Autry's (2010) findings, this study demonstrated the significant predictive power of second and third-semester GPAs. Specifically, for each unit increase in GPA during the second and third semesters, the odds of graduating increased by 1.40 times (95% CI 1.16 – 1.68, $p < 0.001$) and 1.59 times (95% CI 1.37 – 1.84, $p < 0.001$), respectively. These results align with Pascarella and Terenzini's (2005) assertion that college grades are a primary predictor of degree completion, particularly emphasizing the importance of first-year grades.

While Belcheir (2000) highlighted the significance of first-term GPA, this study's focus on the subsequent semesters offers a new perspective. Interestingly, Autry observed that student-athletes with higher GPAs in their second semester were less likely to graduate in 6 years, suggesting potential complacency among student-athletes after the first year. This study's finding, highlighting the positive impact of higher GPAs in later semesters, contrasts with

Autry's results, where a high second-semester GPA appeared to give a false sense of assurance about extending athletic eligibility and academic success.

The discrepancy in findings between this study and Autry's work highlights the complex relationship between academic performance and graduation outcomes among student-athletes. It suggests that while initial academic success is crucial, maintaining or improving academic performance in subsequent semesters is equally, if not more, important for graduation. These differences underscore the necessity for further research to examine the trajectories of student-athlete academic performance beyond the first year, particularly in understanding the factors contributing to sustained academic success or decline.

Number of Degree Hours. In this research, a significant relationship was observed between the number of degree hours taken by NJCAA student-athletes in their first and third terms and their academic success. This study found that with every additional unit of credit taken in the first semester, the odds of graduating increased by 1.04 times (95% CI 1.01 – 1.07, $p = 0.01$), and in the third semester, this increase was 1.05 times (95% CI 1.03 – 1.08, $p < 0.001$). These findings align with previous studies suggesting that a higher credit load, particularly in the initial terms, is associated with better academic integration and a stronger commitment to educational objectives, potentially leading to enhanced academic performance and higher graduation rates. However, the challenge of managing a substantial course load alongside athletic commitments is noteworthy. Effective time management and academic support are essential for student-athletes to successfully navigate this balance. The study's results support Autry's (2010) findings that the number of degree hours taken in the first, second, and third terms of the first year of enrollment were statistically significant predictors of student-athlete success, emphasizing the critical role of credit load in predicting student-athlete academic success.

Considering that most student-athletes aim to transfer to 4-year institutions and often enroll in full credit loads, especially outside their main competition season, this area presents a rich avenue for future research. Further exploration into the enrollment patterns of student-athletes, both during competitive and non-competitive terms across various educational contexts, is necessary. Such research could provide deeper insights into their academic behaviors and strategies to support their educational pursuits effectively.

Withdrawals. This study highlighted the significant impact of course withdrawals on the academic success of NJCAA student-athletes. Contrary to Autry's (2010) findings, it was observed that the number of withdrawals is a significant predictor of lower graduation rates. Specifically, for every course withdrawal in the first semester, the odds of graduating decreased by 0.64 times (95% CI 0.44 – 0.92, $p = 0.017$), and a similar trend was seen in the third semester, with the odds decreasing by 0.76 times (95% CI 0.60 – 0.96, $p = 0.02$). Bivariate analyses and the regression model revealed that withdrawals in the first semester reduced the likelihood of graduating by 33% and by 23% during the third semester.

Empirical evidence has long suggested that course withdrawals in the first year of college, often a sign of academic difficulties or adjustment challenges, can negatively impact student-athletes by reducing credit accumulation and potentially delaying graduation. These findings underscore the importance of institutions monitoring withdrawal rates and implementing timely interventions to aid student-athletes in persisting and retaining their academic standing. However, this study did not delve into the reasons behind the course withdrawals of student-athletes. Given the significance of withdrawals in predicting academic outcomes, future research should focus on understanding the underlying causes of these withdrawals. Identifying these factors is crucial for developing effective strategies to support student-athletes, enhancing their

academic continuity and increasing their chances of successful graduation. This area of research could provide valuable insights into improving the academic experience and outcomes for student-athletes in community colleges and beyond.

Study Limitations

The study's limitations include its restricted applicability to different regions or divisions, the omission of certain influential variables, dependence on secondary data, the inability to infer causality, potential confounding factors, and challenges in monitoring long-term attrition. Notably, it does not account for transfer student-athletes or those who return after a break. The focus was solely on selected precollege demographics, academic factors, and first-year college experiences, limiting its scope. Additionally, without comparing student-athletes to non-athlete peers, it's unclear if the success factors apply universally. The findings derived from a single 2-year community college may not be widely applicable.

Recommendations

The following section outlines recommendations for practice and future research. For practice, the recommendations provide actionable steps for 2-year community colleges to support NJCAA student-athletes in degree completion, leveraging the study's insights for strategic decision-making to facilitate positive changes. For future research, the section will suggest areas of inquiry that build on the current study's findings, aiming to deepen the understanding of factors contributing to NJCAA student-athlete academic success within community college settings.

Recommendations for Practice

This second describes several recommendations for practice based on the findings of this research study.

Recommendation 1: Centralize Graduation Reporting for NJCAA. The NJCAA, which primarily serves 2-year colleges, does not currently provide centralized reports on student-athlete graduation rates, unlike the NCAA. This is primarily due to the decentralized nature of NJCAA member institutions, each with its own administration and policies. To enhance accountability and data collection, I recommend that the NJCAA centralize its graduation reporting, similar to the NCAA's Facilitating Learning and Achieving Graduation (FLAG) program. This step will ensure a greater focus on student-athlete education and success. In the fall of 2009, the NCAA implemented a new initiative to identify factors and characteristics of student-athletes "at risk" of not graduating (NCAA, 2009b). The FLAG program identifies those student-athletes on an at-risk continuum based on precollege factors, college experience factors, and athletic factors (e.g., coaching changes and opportunities for participation in professional sports). FLAG utilizes a database kept by the NCAA and member institutions are required to collect and provide data in three modules: (a) one for assessing individual student-athlete risk, (b) one for assigning specific support services, and (c) one for evaluating institutional support services. While some NJCAA institutions may track and report graduation rates internally, the emphasis may be more on facilitating successful transfers to 4-year institutions rather than reporting specific graduation data. While graduation rates for student-athletes can vary based on division level and sport, the NCAA reports relatively high graduation rates across divisions, and NJCAA graduation rates are not known.

Recommendation 2: Precollege Enrollment Screenings. Community colleges should establish a precollege screening process that identifies students' demographics before admission. The model developed in this study can be instrumental in academic assistance programming and advising by highlighting the significance of precollege variables in predicting student-athlete

success. Educational researchers have persistently reported that demographic variables are important to student success (Kuh et al., 2007). The results of this study suggest that precollege demographic variables such as SES and HSGPA are reliable predictors of student-athlete success (Autry, 2010; Chen, 2012; Hodes et al., 2015; Shiring, 2020; Slanger et al., 2015). Recruiters should consider these variables when making admissions decisions.

Recommendation 3: Specialized Orientation for First-Generation Student-Athletes. Specialized orientation programs tailored to the needs of first-generation student-athletes to enhance their college preparedness should be developed. These sessions should cover academic expectations, time management, and the availability of campus resources. Pair incoming students with peer mentors who have successfully navigated their first year. Given the influence of precollege demographic variables like SES, institutional policies should particularly target student-athletes at risk of not graduating within 3 years. Student-athletes require additional support to manage their academic workload, especially when they have to miss classes due to competitions or travel. They may rely on academic advisors, tutoring services, or flexible scheduling options to maintain their academic progress (Hoffman, 2019).

Recommendation 4: Targeted Academic Support for Low SES Student-Athletes. Implement comprehensive support services designed to address the unique challenges faced by student-athletes from out-of-state and lower SES backgrounds. Several college experience variables influenced student-athlete graduation within 3 years. Athletic academic support departments should closely monitor student-athletes' academic progress from the beginning of the first semester. Academic support personnel, coaches, and administrators should be sensitive to the differences between student-athletes and sports in helping student-athletes reach their academic potential and retain athletic and academic eligibility. Hodes et al. (2015) emphasized

the importance of higher education institutions adopting an interdisciplinary approach to cater to the academic needs of student-athletes. Such an approach would necessitate a collaborative effort among academic advisors, coaches, and other supportive staff, offering a range of academic support services like tutoring, study skill workshops, and time management courses (Glaza, 2023; Johnson, 2013; Robertson et al., 2019). Recognize the diversity among student-athletes and sports, tailoring support to meet their unique needs. Address discrepancies in graduation rates among sports, focusing on both academic culture and support provision.

Recommendation 5: Enhance Tutoring and Mentoring Services to Address the Unique Challenges of Balance Sports and Academics. Santos et al. (2020) discovered that student-athletes exhibited higher levels of time commitment, balancing both rigorous athletic training and demanding academic schedules. Creating a supportive campus culture that acknowledges and addresses the challenges faced by student-athletes. Expand existing tutoring programs to accommodate the schedules of student-athletes. Create a mentorship program where experienced student-athletes and alumni provide guidance on academic and athletic balance. Set up study halls with access to tutors before or after practice sessions, ensuring that student-athletes can receive help when they need it. Collaboration between administrators, faculty, staff, and students is crucial to identify and implement effective strategies that promote student success and increase graduation rates (Frost et al., 2010).

Recommendations for Future Research

This study has reported several factors that influence student-athlete success in community college settings, yet there remains a wealth of uncharted territory awaiting exploration. Building upon the findings of this study, it is evident that predicted student-athlete first-year grades and GPA have institutional utility. Additionally, the results underscore the

importance of student-athlete academic performance during the first year as a significant predictor of 3-year graduation rates. The unique variables uncovered in this study, which may differ from national and institutional studies, emphasize the importance of universities conducting research to identify the specific variables that drive student-athlete success on their respective campuses. Furthermore, I acknowledge that student-athlete success may be influenced by variables beyond those considered in this study, warranting a broader research scope. For example, the block of college experience variables did not include some reported by Pascarella and Terenzini (2005) to be critical in persistence, such as student-faculty interaction and student socialization in college.

To deepen our understanding of student-athlete success and provide actionable insights, I recommend the following areas for future research.

Future Research Recommendation 1: Longitudinal Analysis of Student-Athlete Success. Embark on longitudinal studies to monitor the progression of student-athletes across different divisions over time, with a focus on degree completion and the enduring impact of their community college experience on their academic and athletic trajectories. Investigate the long-term effects of precollege demographics, academic support programs, and mentorship on post-college outcomes, including career achievements and continued involvement in athletics.

Future Research Recommendation 2: Comparative Analysis of Athletic Programs. Undertake a comparative analysis to evaluate the effectiveness of athletic programs across various community college sports, divisions, and regions. Explore the influence of coaching styles, team dynamics, and available resources on student-athlete success and graduation rates.

Future Research Recommendation 3: Institutional Policy Analysis. Examine the impact of institutional policies on student-athlete success and degree completion. Investigate

how policies related to tuition fees, financial assistance programs, and diversity and inclusion initiatives influence retention, GPA, and graduation rates, particularly among low-income students.

Future Research Recommendation 4: Analyze the Causes and Effects of Course Withdrawals. Conduct research to understand the causes and effects of course withdrawals on student-athlete success and develop targeted retention strategies to address these issues.

Future Research Recommendation 5: Investigate the Impact of Major Selection. Examine the impact of major selection on student-athlete academic achievement and retention, acknowledging that academic pursuits may vary among different majors.

Future Research Recommendation 6: Comprehensive Study on Enrollment Patterns. Conduct a comprehensive study of student-athlete enrollment patterns, including credit hours and course withdrawals, during both competition and off-seasons. Gain insights into their academic behaviors and needs to inform tailored support programs.

Future Research Recommendation 7: Transfer Student-Athletes. According to the college enrollment statistics report for 2023 report, women are 6.71 times more likely to enroll in higher education than men and 9.33 times more likely to earn a degree (Hanson, 2022). Explore the academic performance and graduation rates of student-athletes by gender who transfer into or out of NJCAA institutions. Understand the unique challenges and successes of this subgroup to improve support mechanisms.

Future Research Recommendation 8: Qualitative Research on Student-Athlete Success. Recognize the need for qualitative research to gain a deeper understanding of student-athlete success. Qualitative studies can shed light on the underlying circumstances, motivations, and challenges affecting student-athletes' academic journey. This research should consider

personal and financial factors as well as non-academic influences on student-athlete retention and success.

Future Research Recommendation 8: Replication of the Study. Replication of the study should be conducted in a variety of college settings to include institutions of higher learning such as public universities and more community colleges.

In conclusion, the recommendations presented in this chapter offer practical avenues for community colleges to enhance their support for student-athletes in their pursuit of academic and athletic success. Moreover, these proposed areas for future research seek to expand our comprehension of the multifaceted factors that contribute to student-athlete achievement within the distinctive context of community college settings. By implementing these recommendations and delving into these research areas, we can aspire to create an environment where student-athletes can thrive academically and athletically, ensuring they receive the comprehensive support they need to excel in both domains.

Conclusion

This study's findings suggest that despite the supportive role 2-year community colleges play, student-athlete success is influenced by a combination of precollege demographics and college experience variables. Key factors like first-generation status, HSGPA, residency, sport, choice of major, alongside college GPA, the number of degree hours, and withdrawals for the first year interplay with academic performance, impacting timely graduation rates. The findings from this study provide insight into what else needs to be known about NJCAA student-athlete academic success.

In sum, this study has contributed to the intricate associations of factors that influence the timely graduation of NJCAA student-athletes at a community college in the Midwest United

States. Through a comprehensive analysis of precollege demographic, academic, and college experience variables, this study has provided valuable insights into the predictors of NJCAA student-athlete success in achieving associate degrees within a 3-year timeframe. The research findings from this study have provided a detailed understanding of the complex factors influencing NJCAA student-athlete graduation rates, effectively addressing RQ 1. These insights reveal the multifaceted nature of NJCAA student-athlete graduation on time, underscoring the interplay of various determinants in shaping their educational outcomes. The analysis identified key precollege variables such as gender, race, residency, first-generation status, Pell Grant eligibility, and HSGPA to impact NJCAA student-athletes' on-time graduation. Notably, the study revealed disparities in graduation rates based on gender and race, where female student-athletes and those with higher HSGPAs exhibited a higher likelihood of graduation, highlighting the pivotal role of precollege academic preparedness. Conversely, students from out-of-state or lower socioeconomic backgrounds, as inferred from Pell Grant eligibility, demonstrated a lower probability of graduating.

These insights bring to the forefront the need to address disparities in academic outcomes among NJCAA student-athletes. They emphasize the importance of providing targeted support and interventions to student-athletes, particularly those from underrepresented or disadvantaged backgrounds. By recognizing and responding to the diverse needs of student-athletes, institutions can foster more equitable educational environments and enhance the overall success rates of their athletic programs. This study contributes valuable knowledge to the field, offering a foundation for developing strategies that address the unique challenges faced by NJCAA student-athletes in their pursuit of academic and athletic excellence.

In addressing RQ2, this study has provided significant insights into how college experience variables, such as academic major, GPA across the first three semesters, credits hours for each term, and course withdrawal rates, significantly impact the likelihood of on-time graduation for NJCAA student-athletes. Participation in specific sports like golf, tennis, and rodeo emerged as a positive predictor of graduation. However, student-athletes on partial athletic scholarships and those pursuing majors in communication programs encountered lower graduation odds. The study found a positive correlation between academic performance indicators, including increases in GPA and the completion of degree hours in the initial semesters, with enhanced chances of graduation. In contrast, course withdrawals during these periods were associated with decreased graduation likelihood, emphasizing the critical role of sustained academic engagement and progression.

These findings align with Astin's I-E-O model and social identity theory. Astin's I-E-O model postulates that students' on-time graduation (output) is influenced by both their background characteristics (input) and their college experiences (environment). This study illustrates how various college experiences interact with the students' initial inputs, like their academic readiness and socioeconomic background, to influence their educational outcomes. Social identity theory, which emphasizes the role of group membership in forming one's identity, further supports the findings. The positive impact of participation in certain sports reflects the strong identity and support systems that these athletic groups provide, aiding in academic success. Conversely, the challenges faced by students in specific academic majors or scholarship statuses reflect the complexities of their social identities and the support systems available to them within the college environment.

Together, these theoretical frameworks underscore a holistic view of the student-athlete experience. The study demonstrates that NJCAA student-athlete success is not merely a product of individual effort but is significantly shaped by the interplay of their backgrounds, their chosen academic and athletic paths, and the collegiate environment they navigate. This comprehensive understanding is crucial for developing targeted strategies to support student-athletes in their academic and athletic endeavors, ensuring a balanced and successful college experience.

The systematic analysis of these variables across different logistic regression models has provided a nuanced understanding of their individual and combined impact on student-athlete graduation rates. This approach has offered valuable insights into the robustness of their predictive power and has paved the way for tailored interventions and support strategies.

The potential significance of this study lies in its contribution to the understanding of student success and degree completion, particularly among 2-year NJCAA student-athletes. By identifying key variables influencing graduation rates, the study provides a basis for targeted interventions and support systems. These findings can guide administrators in advocating for resources and implementing evidence-based strategies to improve graduation rates for this unique student population. Moreover, the study builds upon existing research on student-athletes across different divisions and sets a direction for future research in this area.

Future research recommendations include a deeper investigation into the impact of specific interventions based on the identified variables and an exploration of the long-term outcomes of these interventions. Additionally, comparative studies across different types of institutions and athletic divisions could further enhance the understanding of student-athlete success in varying contexts.

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