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Are College Athletes Cheaters? What Do Division I Student-Athletes Report?

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Academic dishonesty is a serious and widespread problem; yet, very little is known about the academic dishonesty of Division I student-athletes. The purpose of this study was to examine the differences in self-reported academical dishonesty (assignment cheating, assignment plagiarism, and test cheating) in subgroups of Division I student-athletes based on most influential individual characteristics and contextual factors. Participants were a diverse sample of 872 varsity student-athletes from nine Division I institutions, both public and private, representing 13 different sports, both men's and women's, and 69 teams. Findings showed that the most at-risk for engagement in academic dishonesty Division I student-athletes are those who are: first generation, viewing their main reason for attending college as mostly athletics, majoring in business, low in their institutional commitment, and in high-profile men's sports. Findings also showed no differences in the self-reported frequency of academic misconduct across recruitment status, academic year, athletic scholarship, and type of university. The implication of this work is that by understanding individual and contextual factors that are specific to student-athletes, staff working with student-athletes can be more prepared to prevent academic dishonesty.

Keywords: academic dishonesty, academic misconduct, cheating, college athletes, Division I

The problem of widespread academic dishonesty on university campuses has long been documented at the college level (e.g., Bowers, 1964). The large-scale multi-campus studies of academic dishonesty conducted by McCabe and his colleagues (e.g., McCabe & Treviño, 1995, 1997; McCabe et al., 2001; McCabe et al., 2012), showing that more than 60% of over 70,000 university students surveyed admitted to cheating or engaging in plagiarism at least once during an academic year (McCabe et al., 2012). Recently, Kuhn and Rubin (2022) examined the perceptions of faculty members Division I universities regarding the extent to which they believe that student-athletes engage in academically dishonest behaviors. However, very little is known about whether Division I student-athletes actually engage in academic dishonesty and, if so, what subgroups of student-athletes are at greatest risk for engagement in academic dishonesty.

Division I is the highest level of intercollegiate athletics sanctioned by the National Collegiate Athletic Association (NCAA) in the United States. This Division is characterized by highest budget, media coverage, and overall popularity on both regional and national levels. Division I student-athletes are highly selected with only 2.5% of high school students being selected to complete at Division I (NCAA, 2020a). Depending on the sport, Division I student-athletes report spending a median of 27–42 hours per week on athletic activities in season (NCAA, 2020b), and the majority of Division I student-athletes report spending just as much or more time on athletics during the offseason (NCAA, 2020c). Further, they report spending anywhere from four to nine hours on their sport during a typical day of competition (NCAA, 2020c). Not surprisingly, approximately one in five Division I student-athletes attend college exclusively for athletic reasons (Yukhymenko-Lescroart, 2022). Nonetheless, participation in athletics for Division I student-athletes is contingent upon meeting academic eligibility requirements established by the NCAA, which include attaining minimum grade point average and a steady progress-toward-degree. When these academic benchmarks are not met, Division I student-athletes may become ineligible to compete and even lose scholarships, which may place pressure on Division I student-athletes. In the context of high athletic time commitments, these pressure to stay competitive in the coursework may lead some Division I student-athletes to a conscious decision of engaging in academic dishonesty. For others, engagement in academic dishonesty might be unintentional due to not fully understanding what constitute academic dishonesty.

Academic dishonesty, or academic misconduct, can be broadly grouped into three major forms: assignment cheating, assignment plagiarism, and test cheating (e.g., Stephens et al., 2010). Assignment cheating frequently includes collaborative cheating, or unpermitted collaboration on written assignments, which is one of the most explicit forms of cheating (McCabe et al., 2001). Plagiarism most often concerns with successfully paraphrasing materials and appropriately attributing sources. Plagiarism most commonly occurs when a student copies a few sentences or paragraphs and submit them as their work without appropriately acknowledging the sources but, in most severe cases, may also involve employing ghost writing services (Stephens et al., 2010). Finally, test cheating most typically occurs when a student copies someone else's responses or allows others to copy their responses or uses crib notes during a text or an exam (McCabe et al., 2001; Stephens et al., 2010).

There are multiple reasons why engaging in behaviors of academic dishonesty is wrong, from moral, ethical, and even legal perspectives. Engaging in academic dishonesty compromises the process of fair, accurate, and equitable assessment of academic performance of students by their university instructors; erodes the value of a university degree; severs the trust between students, faculty members, and society, thereby undermining the primary and fundamental

purposes of higher education. Furthermore, academic dishonesty hinders academic and personal development of students, as well as reinforces the false notion that personal and professional success can be achieved by way of deviation from the established norms and ethical expectations. Despite academic misconduct being an issue of utmost importance, very little is known about academic dishonesty in Division I student-athletes. Therefore, the purpose of this study was to examine which subgroups of Division I student-athletes may be at a greater risk for engaging in academic misconduct.

Academic Misconduct among Student-Athletes: What is Currently Known

While there are many studies that examined prevalence of academic misconduct among college students in the general student body, very little is known about academic misconduct in student-athletes specifically. In a few studies with general student body, authors examined differences in frequency of academic misconduct among students who participated in extracurricular activities, including athletics, and those who did not. These studies have generally indicated that students participating in extracurricular activities are more likely to report higher academic dishonesty (e.g., McCabe & Treviño, 1997; Mustaine & Tewksbury, 2005). In a study with 1,793 college students, McCabe and Treviño (1997), found that the self-reported rates of academic misconduct were higher for students participating in multiple extracurricular activities (a composite of intramural athletics, student government, musical groups, political and cultural groups, religious groups, and college publications), suggesting that the time demands of multiple extracurricular activities place pressures on students to stay competitive in their coursework. Likewise, Mustaine and Tewksbury (2005) used a logistic regression to assess the relationships between risky lifestyle and academic cheating behaviors separately in male and female college students, controlling for fraternities/sororities and intercollegiate athletic participation, showing that student-athletes were more likely to engage in academic misconduct than their non-athlete peers.

Only a few studies reported on academic misconduct intentionally focusing on student-athletes. One such study was conducted by Storch et al. (2002) indicating that unlike their non-athlete peers, student-athletes who justified their academic dishonesty by way of appealing to their teams' norms reported more frequent academic misconduct. These results indicated that the norms of one's social peer group were salient in determining the academically dishonest behaviors of student-athletes, but not of their non-athlete peers, highlighting important differences related to academic misconduct of student-athletes. Because the context within which student-athletes achieve academically is different from the general student-body (Yukhymenko-Lescroart, 2021, 2022), a greater understanding is needed of the role of both individual and contextual factors that contribute to the engagement in academic dishonesty of Division I student-athletes.

Individual and Contextual Factors in Student-Athletes' Academic Dishonesty

According to the social cognitive theory of moral thought and action (Bandura, 1991), which was used as a theoretical lens in conducting this study, the self-regulation of moral conduct is regulated by individual and social influences that are reciprocally connected with each other. These two sources, which may be complimentary or opposing to each other, form a basis for moral behavior. Therefore, it is important to focus on the role of individual differences and contextual factors in the academic dishonesty of Division I student-athletes.

Individual Differences Factors. The large-scale multi-year multi-campus studies of academic dishonesty conducted by McCabe and colleagues, which are summarized in McCabe et al. (2012), found that at traditional, male-affiliated campuses, the levels of self-reported academic misconduct are lower in women than in men. Another individual factor that historically was fairly consistently related to academic dishonesty is age, with older students generally reporting less academic misconduct (e.g., McCabe & Treviño 1997; Mustaine & Tewksbury, 2005). Yet, McCabe et al. (2012) posited that it is not clear to what extent it is age rather than class rank that reflects this inverse relationship. Because freshmen and sophomore students typically take large lecture general education courses that are outside of their majors and primary areas of interest, it may be easier for lower classman students to justify engagement in academic dishonesty.

Additionally, student-athletes who are first in their family to attend a university may be at a higher academic risk than their returning-generation peers. Janke et al. (2017), for example, showed that first-generation students do not integrate an academic identity into their social sense of self as well as other students. They also tend to have a higher level of anxiety for taking tests and exams (Janke et al., 2017). Therefore, first-generation student-athletes might be more at risk for engaging in academic dishonesty.

While the rates of academic dishonesty have generally been found to be higher among student-athletes than non-athletes (e.g., Storch et al., 2002), McCabe et al. (2012) highlighted that "the 'burden' associated with participation in intercollegiate athletics – especially for those who are recruited by a school because of their athletic rather than their academic abilities" is one of main compounding individual factors (p. 86). Yet, no previous studies have investigated the consequences of these differences for student-athletes' academic dishonesty. Therefore, investigating individual differences related to their recruitment status, athletic scholarship, and main reasons for attending university is needed in examining the academic dishonesty of student-athletes.

The academic major of student-athletes may also be related to their academic behaviors. Research with college students has shown consistently higher levels of academic dishonesty among students in business majors (e.g., McCabe & Treviño, 1995; Parks-Leduc et al., 2021). For example, in a study of over 6,000 college students, McCabe and Treviño (1995) found that students majoring in business consistently reported the highest levels of academic dishonesty compared to students in social science and humanities, engineering and science, and other majors. More recently, Parks-Leduc et al. (2021) confirmed that business students reported engaging in more cheating than non-business students.

Finally, institutional commitment is also an important individual factor in academic dishonesty. Students' academic and social integration, as well as commitments to the university and their degrees, have been shown to impact their academic performance, persistence, retention, and overall academic success. For example, Woosley and Miller (2009) found that the persistence of transfer students was positively predicted by academic integration, social integration, and institutional commitment. Likewise, in a study with first-time full-time freshman college students, Yukhymenko-Lescroart and Sharma (2020) found that degree commitment positively predicted their grades, good academic standing, and retention a year later. Therefore, Division I student-athletes with higher institutional commitment are likely to report less frequent academic misconduct than their non-committed counterparts.

Contextual Factors. Peers influence students' own decisions to engage in academic dishonesty. In general, fewer students cheat when they perceive that their peers disapprove of academic misconduct and when they perceive that fewer of their peers engage in academic

misconduct (McCabe et al., 2012). Therefore, students who belong to social environments that do not condemn academic misconduct are more likely to cheat. For student-athletes, there are three major social environments: their university, their sport team, and their sport.

In an influential study by Yukhymenko-Lescroart et al. (2015) examining the implications of coaching behavior for student-athletes well-being and willingness to cheat during athletic competitions in a sample of almost 20,000 NCAA student-athletes, the NCAA sports were conceptualized as high-profile, which consisted of men's baseball, basketball, and football, and low-profile, which includes men's other and all women's sports. Student-athletes in high-profile sports may be more prone to academic misconduct because, as highlighted by McCabe et al. (2012), Division I football and basketball players are often recruited for their athletic talent rather than academic achievement. Indeed, studies have shown that student-athletes in high-profile sports are more likely to have an opportunity to be specially admitted than their counterparts in low-profile sports (e.g., Ingram, 2021; McCullough et al., 2019). Therefore, considering sport profile status in examining differences in the rates of the academic dishonesty of Division I student-athletes may provide additional insights into the academic misconduct of student-athletes.

Finally, the type of institution may also play a role in the academic misconduct of student-athletes because public and private schools reflect the different social classes and different academic goals of their students. While Brown and Choong (2005) reported no differences in academic dishonesty among business students at public and private universities, public schools typically have higher acceptance rates, higher enrollment rates, and higher minority and low-income students (NCES, 2022).

Purpose of the study. Overall, research across decades has consistently shown that internal and external pressures can lead to engagement in various forms of academic misconduct (e.g., Bowers, 1964; McCabe & Treviño, 1997; McCabe et al., 2012). Student-athletes have been found to have higher levels of academic dishonesty than their non-athlete peers (e.g., Mustaine & Tewksbury, 2005; Storch et al., 2002). Based on the conducted literature review of the most important individual and contextual factors in college students' academic misconduct, the purpose of this study was to examine the differences in academically dishonest behaviors, such as assignment cheating, assignment plagiarism, and test cheating, across the subgroups of Division I student-athletes based on individual differences and contextual factors, such as: academic year, first-generation status, recruitment status, athletic scholarship status, reasons for attending university, major, institutional commitment, sport type based on sport profile and gender, and type of university.

Method

Participants

Participants were a diverse sample of 872 varsity student-athletes from nine Division I institutions, both public and private, across 69 teams, representing 13 different men's and women's sports. Their demographic and experiential characteristics are shown in Table 1. In terms of academic background, the sample was representative of all academic years and a number of majors, which were grouped into four major categories: business, social science, communication, and other. Student-athletes were also representative in terms of the main reasons for attending college, including both first-generation and non-first-generation student-athletes. In terms of athletic background, the sample was representative in terms of recruitment status and

athletic scholarship status. The sports were grouped into five major sport groups to reflect differences based on sport profile and gender: men's baseball, men's basketball, football, men's other, and women's sports. In terms of whether this sample was representative of the Division I student-athlete population on these demographic and experiential characteristics, the NCAA (2022) provides demographic data for gender only (NCAA, 2022), and the results from the one-sample chi-square test indicated that this sample was representative of the Division I student-athlete population, $\chi^2(1, N = 872) = 0.54$, $p = .462$.

Table 1
Demographic and Background Characteristics of the Sample, N = 872

		Student-Athlete		Team	
Characteristic	Subgroup	*N*	%	*N*	%
Academic year	Freshman	283	32.5%	n/a	n/a
	Sophomore	225	25.8%	n/a	n/a
	Junior	218	25.0%	n/a	n/a
	Senior	146	16.7%	n/a	n/a
First-generation status	First-generation	196	22.5%	n/a	n/a
	Non-first generation	676	77.5%	n/a	n/a
Recruitment status	Actively recruited	779	89.3%	n/a	n/a
	Not recruited	93	10.7%	n/a	n/a
Athletic scholarship	Full scholarship	367	42.1%	n/a	n/a
	Partial scholarship	295	33.8%	n/a	n/a
	No scholarship	210	24.1%	n/a	n/a
Reasons for attending college	Mostly academic	81	9.3%	n/a	n/a
	Mostly athletic	223	25.6%	n/a	n/a
	Both academic and athletic	568	65.1%	n/a	n/a
Major	Business	184	21.1%	n/a	n/a
	Social science	90	10.3%	n/a	n/a
	Communication	79	9.1%	n/a	n/a
	Other	519	59.5	n/a	n/a
Institutional commitment	Would start over here again	675	77.4%	n/a	n/a
	No	197	22.6%	n/a	n/a
Gender	Male	473	54.2%	28	40.6%
	Female	399	45.8%	41	59.4%
Sport	Men's baseball	102	11.7%	8	11.6%
	Men's basketball	42	4.8%	5	7.2%
	Men's football	193	22.1%	6	8.7%
	Men's other	136	15.6%	9	24.6%
	Women's all	399	45.8%	41	59.4%
Type of university	Public	584	67.0%	45	65.2%
	Private	288	33.0%	24	34.8%

Measures

Dependent Variables – Academic Dishonesty. Participants' engagement in academically dishonest behaviors was measured by the academic cheating behaviors scale adopted from Stephens et al. (2010). This scale is designed to measure frequency of engagement in the six most typical academically dishonest behaviors, representing the following three major types: assignment cheating, assignment plagiarism, and test cheating. The items are listed in Table 3. Participants were asked to report how often they had engaged in each of these behaviors in the past year on a 5-point response scale with all response options labeled: 1 = *never*, 2 = *once or twice this year*, 3 = *about once a month*, 4 = *about once a week*, and 5 = *almost daily*. This scale has been used in previous studies of academic misconduct in college students and has been shown to be valid and reliable. Specifically, Stephens et al. (2010) reported a reliability coefficient of .90.

Independent Variables – Student-Athletes' Individual Differences. Participants also completed a number of questions related to their background characteristics and experiences. Specifically, they were asked to indicate their academic year (freshman, sophomore, junior, senior), whether they were actively recruited in high school for their sport in college (yes, no), whether they held an athletic scholarship (full, partial, none), whether they were a first-generation student (yes, no), the main reason for attending college (academic, athletic, both academic and athletic), their major, and whether they would choose the same university if they were able to start over (yes, no).

Independent Variables – Contextual Differences. Student-athletes were asked to indicate the type of their institution (public, private) as well as their specific sport. The following five groups were created based on the reported sport by sport profile and gender: men's baseball, men's basketball, football, men's other, and women's sports. Additionally, student-athletes' university, team, and sport memberships were also recorded.

Procedure

Approvals were obtained for the research from institutional review boards at each of the nine institutions as well as from all athletic departments. The survey, which was anonymous and completely voluntary, was administered on paper at the end of a sport practice and proctored by the team captain in a manner similar to proctoring course student ratings of instructions at the end of the semester. Specifically, each participant completed the survey and placed it in the envelope themselves. Once all surveys were returned to the envelope, the team captain sealed the envelope and signed across its seal. No administrative, coaching, or academic staff were present during the survey completion. The procedure was the same across all institutions and teams.

Data Analysis

First, self-reported frequency of assignment cheating, assignment plagiarism, and test cheating were examined using descriptive statistics and correlations. Next, similarities among student-athletes within universities, teams, and sports on assignment cheating, assignment plagiarism, and test cheating were examined using intraclass correlation coefficients (ICCs) (e.g., see Hair et al., 2019; Raudenbush & Bryk, 2002). ICC allows to estimate the amount of variance in the outcomes that can be attributed to social contexts of university, team, and sport within

which student-athletes achieve, above and beyond their individual differences. When ICC values indicate similarities among student-athletes, traditional single-level approach are not appropriate for data analysis because of the violation of the assumptions of independence. In this case a multilevel approach to data analysis is needed, which is an extension of regression analysis that allows incorporation of both individual (level-1) and contextual (level-2) effects (Hair et al., 2019; Raudenbush & Bryk, 2002). A multilevel approach is particularly fitting for addressing the purpose of the present study in examining individual (level-1) and contextual (level-2) differences.

Thus, group differences on the behaviors of academic misconduct were examined using a multiple regression model with three dependent variables (assignment cheating, assignment plagiarism, and test cheating) and a multiple level approach nesting student-athletes within a level-2 groups as indicated by the ICC results. The differences were examined based on the following independent variables: academic year (freshman, sophomore, junior, senior), first-generation status (first generation, continuing generation), recruitment status (actively recruited in high school for their sport, not recruited), athletic scholarship (full, partial, none), reasons for attending college (mostly academic, mostly athletic, both academic and athletic), major (business, social studies, communication, other), institutional commitment (would choose the same university again if could start over, would not choose the same university again), sport based on sport profile and gender (men's baseball, men's basketball, men's football, men's other, women's all), and type of university (public, private). These independent variables were entered at their corresponding and appropriate levels (individual vs. contextual grouping). Dummy codes of 0s and 1s were used for all independent variables, which allowed to estimate subgroup differences. When there were more than two subgroups, multiple dummy codes were used (e.g., two dummy codes for three subgroups). In these cases, model constraint was used to estimate pairwise differences among the coefficients. The model was estimated using the Bayesian estimation method with non-informative priors. An advantage of the Bayesian analysis is that it has no distributional assumption (Muthén, 2010; Muthén et al., 2017) and, thus, it can be particularly fitting for the academic misconduct data that are likely to have a non-normal distribution. The fit of the model with the Bayesian estimation method is deemed good when a posterior predictive p-value is non-significant and the 95% confidence interval for the difference between the observed and the replicated chi-square values includes a value of 0 (Asparouhov & Muthén, 2010).

In addition to estimating mean differences, effect sizes were also calculated, which are interpreted as follows: values between .20-.49 represent a small effect size, values between .50-.79 represent a medium effect size, and values .80 or greater represent a large effect size. Analyses were performed in Mplus, version 8.8 (Muthén & Muthén, 2012–2022).

Results

Descriptive Statistics

Table 2 summarizes descriptive statistics and correlation for the three types of academic dishonesty. The correlations between the three types of academic dishonesty were all significant, positive, and moderate, suggesting that student-athletes who reported engagement in one type of academic misconduct also reported engagement in other types. Test of parameter constraint showed that student-athletes reported more frequent engagement in assignment cheating than in assignment plagiarism, $\Delta M = 0.46$, SE = .02, 95% CI [0.42, 0.51], $p < .001$, or test cheating, $\Delta M = 0.43$, SE = .03, 95% CI [0.38, 0.48], $p < .001$. But no significant differences emerged in

frequency of engagement in assignment plagiarism and test cheating, $\Delta M = 0.03$, SE = .02, 95% CI [-0.002, 0.07], $p = .066$.

Table 2
Descriptive Statistics and Correlation for Self-Reported Frequency of Academic Dishonesty for the Total Sample, N = 872

					Correlations	
Construct	Min	Max	*M*	*SD*	1	2
1. Assignment cheating	1	5	1.76	0.84	-	
2. Assignment plagiarism	1	5	1.30	0.53	.55*** [.50, .59]	-
3. Test cheating	1	5	1.33	0.64	.54*** [.49, .58]	.64*** [.60, .68]

Note. *** $p < .001$.

While means are useful statistics in summarizing statistical data, they do not always convey the degree of a given phenomenon. Therefore, Table 3 displays the percentages of student-athletes who reported engagement in the six different "academic behaviors" once or more during the academic year. As shown, student-athletes were most likely to report engaging in an unpermitted collaboration on an assignment (58.6%), followed by copying another student's work for homework assignment and submitting it as own (40.9%), not attributing sources (36.9%), copying another student's work during a test (27.1%), and using unpermitted notes during a test (18.2%). Student-athletes were least likely to report purchasing a complete paper and submitting it as own (6.3%).

Table 3
Percentage of Student-Athletes' Self-Reported Engagement in Academic Dishonesty: Engaged Once or More This Year

Academic Behavior	*N*	%
Assignment cheating		
1. Collaborated on an assignment when the instructor asked for individual work.	511	58.6%
2. Copied all or part of another student's homework and submitted it as your own.	357	40.9%
Assignment plagiarism		
3. Paraphrased or copied a few sentenced or paragraphs and submitted it as your own without citing the source.	322	36.9%
4. Obtained or purchased a complete paper and submitted it as your own work.	55	6.3%
Test cheating		
5. Copied another students' work or answers during a test or exam.	236	27.1%
6. Used unpermitted notes during tests or exams.	159	18.2%

Similarities Within Schools, Sports, and Teams

Because environmental factors play an important role as behavioral determinants, it is important to examine the extent to which self-reported engagement in academically dishonest behaviors were correlated among student-athletes belonging to the same social context (university, sport, team). For this purpose, intraclass correlation coefficients (ICCs) were estimated, which quantifies the degree of similarity in assignment cheating, test cheating, and plagiarism among from the same universities, teams, and sports. As displayed in Table 4, results showed that the degree of similarity in student-athletes' academic dishonesty within universities and sports was negligent; but provided evidence for the similarity in student-athletes' academic dishonesty within teams. Specifically, 9.7% of the variance in assignment cheating, 6.8% in test cheating, and 4.0% in plagiarism was attributed to the contextual influences of the team. These results suggested that student-athletes are most similar with their teammates on assignment cheating, followed by test cheating and plagiarism. In contrast, only between 0.9% and 2.6% of the unique variance in academic misconduct was attributed to the contextual influences of the university, and between 1.5% and 2.3% to the contextual influences of the sport.

Table 4
Intraclass Correlation Coefficients (ICCs): Similarity in Academic Dishonesty of Student-Athletes within University, Team, and Sport

	Student-athletes (N = 872) nested within:		
Academic Behavior	University, k = 9	Team, k = 69	Sport, k = 13
Assignment cheating	2.2%	9.7%	2.3%
Assignment plagiarism	0.9%	4.0%	1.5%
Test cheating	2.6%	6.8%	2.0%

Overall, these results indicated that student-athletes' self-reported frequency in academic misconduct was not very similar within the schools or within the sports, but that it is important to account for the similarity due to the team's contextual influences in further analyses.

Inferential Statistics: Group Differences

The differences were examined based on academic year, first-generation status, recruitment status, athletic scholarship, reasons for attending college, major, institutional commitment, sport based on sport profile and gender, and type of university. Based on the results for the ICC values, a multilevel regression model was specified simultaneously with three dependent variables (assignment cheating, assignment plagiarism, test cheating), in which student-athletes were nested within teams. Two independent variables were team-level: type of institution (public, private) and sport group (men's baseball, men's football, men's other, women's sport). Notably, the sport group also reflected gender differences. All other independent variables were individual and entered at the student-athlete level. The model was estimated using the Bayesian estimation method and its fit was good as indicated by a non-significant posterior predictive p-value and the 95% confidence interval for the difference between the observed and the replicated chi-square values containing a value of "0": 95% CI for χ^2 [-32.56, 37.17], p = .456. Table 5 shows the results, which are summarized below.

Table 5
Final Model Non-Standardized Statistics for All Subgroup (Independent Variables) on Self-Reported Engagement in Academic Misconduct, N = 872

	Assignment Cheating			Assignment Plagiarism			Test Cheating		
Subgroup	Δ*M* (*SD*)	95% CI	ES	Δ*M* (*SD*)	95% CI	ES	Δ*M* (*SD*)	95% CI	ES
Student-athlete level									
Year: Freshman vs sophomore	.01 (.07)	[-.14, .15]	.01	.00 (.05)	[-.09, .09]	.00	.01 (.06)	[-.10, .12]	.02
Year: Freshman vs junior	.01 (.07)	[-.14, .15]	.01	-.04 (.05)	[-.13, .06]	-.05	.05 (.06)	[-.06, .16]	.08
Year: Freshman vs senior	.03 (.09)	[-.13, .20]	.04	-.02 (.06)	[-.12, .09]	-.03	-.05 (.07)	[-.18, .08]	-.08
Year: Sophomore vs junior	.00 (.08)	[-.15, .15]	.00	-.04 (.05)	[-.13, .06]	-.05	.04 (.06)	[-.07, .16]	.06
Year: Sophomore vs senior	.03 (.09)	[-.14, .20]	.04	-.02 (.06)	[-.13, .09]	-.03	-.06 (.07)	[-.19, .07]	-.10
Year: Junior vs senior	.03 (.09)	[-.14, .20]	.04	.02 (.06)	[-.09, .13]	.03	-.10 (.07)	[-.23, .03]	-.16
First-generation vs not	.05 (.07)	[-.09, .18]	.06	-.01 (.05)	[-.09, .08]	-.01	.11 (.05)	[.00, .21]	.18
Recruited in high school vs not	-.04 (.09)	[-.22, .14]	-.05	.01 (.06)	[-.12, .12]	.01	.03 (.07)	[-.11, .17]	.05
Scholarship: Full vs partial	.05 (.08)	[-.10, .02]	.06	-.04 (.05)	[-.14, .06]	-.05	-.07 (.06)	[-.18, .05]	-.11
Scholarship: Full vs none	.07 (.08)	[-.09, .23]	.09	.02 (.05)	[-.08, .13]	.03	-.02 (.06)	[-.14, .10]	-.03
Scholarship: Partial vs none	.03 (.08)	[-.13, .18]	.04	.06 (.05)	[-.04, .17]	.08	.05 (.06)	[-.08, .17]	.08
Reasons: Athletic vs academic	.30** (.12)	[.07, .53]	.38	.08 (.08)	[-.06, .23]	.10	.14 (.09)	[-.04, .31]	.23
Reasons: Athletic vs both	.32*** (.07)	[.19, .45]	.40	.12** (.04)	[.03, .21]	.15	.17*** (.05)	[.06, .27]	.28
Reasons: Academic vs both	.02 (.10)	[-.18, .22]	.03	.04 (.07)	[-.09, .17]	.05	.03 (.08)	[-.13, .18]	.05
Major: Business vs social sciences	.34*** (.11)	[.13, .55]	.43	.07 (.07)	[-.07, .20]	.09	.18* (.08)	[.02, .34,]	.29
Major: Business vs communication	.25* (.11)	[.03, .47]	.32	.04 (.07)	[-.10, .18]	.05	.14 (.09)	[-.03, .31]	.23
Major: Business vs other	.27*** (.07)	[.13, .41]	.34	.07 (.05)	[-.02, .16]	.09	.25*** (.06)	[.14, .36]	.41
Major: Social sciences vs communication	-.09 (.13)	[-.34, .16]	-.11	-.03 (.08)	[-.19, .13]	-.04	-.04 (.10)	[-.23, .15]	-.06
Major: Social sciences vs other	-.07 (.09)	[-.26, .12]	-.09	.00 (.06)	[-.12, .12]	.00	.07 (.07)	[-.07, .21]	.11
Major: Communication vs other	.02 (.10)	[-.17, .22]	.03	.03 (.06)	[-.10, .16]	.04	.11 (.08)	[-.04, .26]	.18
Institutional commitment: Start over vs not	-.12 (.07)	[-.25, .01]	-.15	-.09* (.04)	[-.18, -.01]	-.11	-.15*** (.05)	[-.25, -.05]	-.24
Team level									
Sport: Men's BA vs Men's BB	.59* (.28)	[.04, 1.14]	.74	-.10 (.15)	[-.40, .19]	-.13	.17 (.19)	[-.21, .55]	.28
Sport: Men's BA vs Men's FB	.33 (.20)	[-.06, .73]	.42	.09 (.10)	[-.11, .28]	.11	.11 (.13)	[-.15, .37]	.18
Sport: Men's BA vs Men's Other	.21 (.18)	[-.15, .55]	.26	.11 (.09)	[-.07, .29]	.14	.17 (.12)	[-.07, .41]	.28
Sport: Men's BA vs Women's	.33* (.16)	[.02, .63]	.42	.17* (.08)	[.01, .32]	.21	.21* (.11)	[.00, .42]	.34
Sport: Men's FB vs Men's BB	.25 (.27)	[-.28, .79]	.32	-.19 (.14)	[-.47, .09]	-.24	.06 (.19)	[-.31, .43]	.10
Sport: Men's FB vs Men's Other	-.13 (.18)	[-.49, .23]	-.16	.02 (.09)	[-.15, .20]	.03	.06 (.12)	[-.18, .29]	.10
Sport: Men's FB vs Women's	-.01 (.15)	[-.30, .29]	-.01	.08 (.07)	[-.06, .22]	.10	.10 (.10)	[-.10, .30]	.16
Sport: Men's BB vs Men's Other	-.38 (.31)	[-.10, .23]	-.48	.22 (.16)	[-.11, .54]	.28	-.01 (.22)	[-.43, .42]	-.02
Sport: Men's BB vs Women's	-.26 (.23)	[-.71, .19]	-.33	.27* (.12)	[.03, .52]	.34	.04 (.16)	[-.28, .35]	.06
Sport: Men's Other vs Women's	.12 (.13)	[-.14, .38]	.15	.05 (.07)	[-.08, .19]	.06	.04 (.09)	[-.13, .22]	.06
Type of university: Public vs private	.00 (.10)	[-.19, .19]	.00	.06 (.05)	[-.04, .16]	.08	.03 (.07)	[-.11, .15]	.05

Note. SD = posterior standard deviation. 95% CI = 95% credible interval. ES = effect size. ES = estimate / SD dependent variable. ES of .20-.49 = small, .50-.79 = medium, .80 or above = large. Men's BA = men's baseball; Men's BB = men's basketball; Men's FB = men's football. *$p < .05$, **$p < .01$, ***$p < .001$.

Assignment Cheating. The predictors accounted for 6.7% of student-athlete level variance at the student-athlete level and 21.7% of team-level variance in assignment cheating. As shown in Table 5, differences in assignment cheating emerged based on reasons for attending college, major, and sport. Specifically, student-athletes who reported that they were attending university for mostly athletic reasons reported more frequent assignment cheating than student-athletes who attended university for mostly academic reasons, ΔM = .30, SD = .12, 95% CI [.07, .53], ES = .38, p = .005, or for both academic and athletic reasons, ΔM = .32, SD = .07, 95% CI [.19, .45], ES = .40, $p < .001$. However, no differences were found between student-athletes who attended university for mostly academic reasons and for both academic and athletic reasons. In terms of majors, student-athletes in business reported more frequent engagement in assignment cheating than their counterparts majoring in social science, ΔM = .34, SD = .11, 95% CI [.13, .55], ES = .43, p = .001, communication, ΔM = .25, SD = .11, 95% CI [.03, .47], ES = .32, p = .013, and other majors, ΔM = .27, SD = .07, 95% CI [.13, .41], ES = .34, $p < .001$. Finally, men's baseball players reported significantly more frequent assignment cheating than men's basketball players, ΔM = .59, SD = .28, 95% CI [.04, 1.14], ES = .74, p = .018, and female student-athletes, ΔM = .33, SD = .16, 95% CI [.02, .63], ES = .42, p = .019. However, no other pairwise differences emerged among student-athletes in men's baseball, basketball, and football, as well as women's sports.

Assignment Plagiarism. The predictors accounted for 3.6% of student-athlete level variance at the student-athlete level and 50.5% of team-level variance in assignment plagiarism. As indicated in Table 5, differences were found based on reasons for attending college, institutional commitment, and sport. Specifically, student-athletes who reported that they attended university for mostly athletic reasons reported more frequent assignment plagiarism than student-athletes who attended university for both academic and athletic reasons, ΔM = .12, SD = .04, 95% CI [.03, .21], ES = .15, p = .003. Students who indicated that they would still choose their institution if they could start over reported significantly lower frequency of engagement in assignment plagiarism than their peers who indicated that they would not choose their institution, ΔM = -.09, SD = .04, 95% CI [-.18, -.01], ES = -.11, p = .014. Finally, student-athletes on men's baseball and men's basketball teams reported significantly more frequent assignment plagiarism than student-athletes on women's teams, ΔM = .17, SD = .08, 95% CI [.01, .32], ES = .21, p = .019 and ΔM = .27, SD = .12, 95% CI [.03, .52], ES = .34, p = .015, respectively.

Test Cheating. The predictors accounted for 7.2% of student-athlete level variance at the student-athlete level and 22.9% of team-level variance in test cheating. As shown in Table 5, differences in test cheating emerged across subgroups of student-athletes based on first-generation status, reasons for attending college, major, institutional commitment, and sport. Specifically, first generation student-athletes reported more frequent engagement in test cheating than their continuing generation peers, ΔM = .11, SD = .05, 95% CI [.00, .21], ES = .18, p = .026. Student-athletes who reported that they attended university for mostly athletic reasons reported more frequent test cheating than student-athletes who attended university for both academic and athletic reasons, ΔM = .17, SD = .05, 95% CI [.06, .27], ES = .28, p = .001. Student-athletes in business majors reported more frequent engagement in test cheating than their counterparts majoring in social science, ΔM = .18, SD = .08, 95% CI [.02, .34], ES = .29, p = .014, and other majors, ΔM = .25, SD = .06, 95% CI [.14, .36], ES = .41, $p < .001$. As well, students who indicated that they would still choose their institution if they could start over reported significantly lower frequency of engagement in test cheating than their peers who

indicated that they would not choose their institution, Δ*M* = -.15, SD = .05, 95% CI [-.25, -.05], ES = -.24, *p* = .001. Finally, men's baseball players reported significantly more test cheating than female student-athletes, Δ*M* = .21, SD = .11, 95% CI [.00, .42], ES = .34, *p* = .025.

Discussion

Academic misconduct is a serious but widespread phenomenon among undergraduate students; yet very little is known about the academic misconduct of student-athletes. Unlike students in the general student body, Division I student-athletes balance two main roles and the associated responsibilities of being a student and an athlete; thus, the context within which they pursue their undergraduate degrees differs from that of students in the general student body. The purpose of this study was to examine the differences in academically dishonest behaviors, such as assignment cheating, assignment plagiarism, and test cheating, across the subgroups of Division I student-athletes, based on individual differences and the following contextual factors: academic year, first-generation status, recruitment status, athletic scholarship, reasons for attending college, major, institutional commitment, and across sport groups based on gender and sport profile. Findings indicated that there is similarity in the frequency of reporting engagement in academic misconduct among student-athletes within athletic teams. Findings also highlighted several important differences in academic misconduct among the subgroups of Division I student-athletes based on their first-generation status, main reasons for college attendance, major choice, institutional commitment, and across sport groups based on gender and sport profile.

Contextual Influences of Team

Findings showed that team accounted for unique variance in academic misconduct of student-athletes above and beyond their individual differences as indicated by the intraclass correlation coefficients, and indicated that student-athletes within their teams were similar in self-reported frequency of engagement in assignment cheating, assignment plagiarism, and test cheating. Yet, there was little evidence of the similarities in academic misconduct of student-athletes within their universities or sports. Overall, this finding is consistent with the proposition of Storch et al. (2002) who, in a study of academic dishonesty of intercollegiate athletes and non-athletes, found that student-athletes may adhere to the social norms of their teams. The similarity among student-athletes within the teams on academic cheating is concerning because it suggests that there are team cultures that are more prone to academic cheating.

Across the three types of academic dishonesty, the highest similarity of student-athletes within the teams was found for assignment cheating. Mustaine and Tewksbury (2005) suggested that male student-athletes may help each other cheat in academics, which can provide an explanation of this finding. Likewise, Storch et al. (2002) posited that the peer groups of some student-athletes may be promoting an atmosphere in which academic cheating is normalized. Therefore, as student-athletes' sense of belonging to the team grows, they may be more compelled to support their teammates to cheat. The ethical climate on the team have been shown to be relevant to ethical conduct in sport. For example, in a study with almost 20,000 student-athletes who represented the three NCAA Divisions, Yukhymenko-Lescroart et al. (2015) found that student-athletes with a higher team ethical climate were less willing to cheat in order to win a game. The present findings point that ethical climate on the team may also be relevant to student-athletes' ethical conduct in classrooms. Overall, these findings suggest that the motivational climate and the moral atmosphere on the team plays an important implication for student-athletes' decisions related to academic dishonesty.

Findings also showed that academically dishonest behaviors of assignment cheating, assignment plagiarism, and test cheating were positively and moderately correlated with each other, suggesting that student-athletes who reported engaging in one type of academic misconduct are also likely to report engaging in the other two. While studies on the academic misconduct of Division I student-athletes are scarce, Mustaine and Tewksbury (2005) supposed that the competitive nature of the athletic domain might manifest in the classroom through cheating due the desire to do better than other students in the class. Previous studies with college students also found that academic cheating was related with other deviant behaviors, such as risky or problematic alcohol and drug use behaviors (Mustaine & Tewksbury, 2005), suggesting that those students who engage in risky behaviors are likely to engage in other types of risky behavior as well.

Differences Based on First-Generation Status

Findings showed that first-generation student-athletes reported significantly more frequent engagement in test cheating than their returning generation counterparts. Yet, no differences emerged between these two subgroups on homework cheating and plagiarism. Compared to continuing-generation students, first-generation students are more prone to test anxiety and less likely to integrate an academic identity into their social sense of self (Janke et al., 2017). College students who have high levels of course anxiety, deem courses difficult, and have poor academic performance perceive tests to be more difficult (Hong & Karstensson, 2002) and, thus, may decide to cheat. Indeed, in a study with hypothetical scenarios, perception of tests as difficult learning tasks was shown to be connected with a greater likelihood of academic cheating (Wenzel & Reinhard, 2020). In addition to test anxiety, academic identity has been found to play an important role in the academic success of Division I student-athletes, including academic performance, effort, and achievement motivation (e.g., Yukhymenko-Lescroart, 2018, 2021, 2022). Additionally, as found by McCabe & Treviño (1997), students with low academic performance report more frequent academic dishonesty. Therefore, it is likely that Division I student-athletes with a strong academic identity would engage in less frequent academic cheating. When it comes to the first-generation students specifically, the low integration of academic identity into their sense of self may also be relevant to the more frequent test cheating among the first-generation students compared to their returning generation counterparts. This is something that should be further examined in the future studies.

Differences Based on Main Reasons for Attending College

Findings showed that main reasons for attending college of student-athletes were relevant to all types of academic misconduct. Specifically, student-athletes with mostly athletic reasons reported more frequent assignment cheating, assignment plagiarism, and test cheating than student-athletes with both academic and athletic reasons. Additionally, they also reported more assignment cheating than student-athletes with mostly academic reasons. While most Division I student-athletes recognized the dual purposes of college during their undergraduate years, sport participation was a domineering motive for a fraction of them. The reasons for college attendance are likely to be reflected in student-athletes' identification. The detrimental consequence of a strong athletic identification for academic success have been found in numerous studies, including for grades (Bimper, 2014; Yukhymenko-Lescroart, 2022; van Rens et al., 2019), academic adjustment (Melendez, 2009), major selection (Foster & Huml, 2017), academic achievement goals (Yukhymenko-Lescroart, 2018), and effort in academics

(Yukhymenko-Lescroart, 2021). Surprisingly, findings showed no significant differences in assignment plagiarism and test cheating between student-athletes with mostly athletic and mostly academic reasons. These two types of academic dishonesty reflect more challenging learning tasks, such as writing papers and taking tests or exams, compared to assignment cheating. It might be that student-athletes who recognize their dual focus do not overcommit to one of these domains; whereas student-athletes who hold mostly academic reasons utilize academically dishonest behaviors on more challenging academic tasks (writing, tests) to compensate for the time commitments related to athletic participation. Overall, the current findings add to the body of literature providing evidence that student-athletes who attend college for mostly athletic reasons report greater academic dishonesty.

Differences Based on Major

Findings indicated that student-athletes majoring in business generally reported more frequent assignment cheating and test cheating than student-athletes in other majors. Findings of the present study are consistent with the previous studies showing that students in business majors report higher levels of academic dishonesty (e.g., McCabe & Treviño, 1995; Parks-Leduc et al., 2021). Findings also indicated that no other differences emerged across the majors.

Notably, some student-athletes might select a major based on athletic eligibility considerations rather than their career aspiration (Navarro & Malvaso, 2016). In a study of perceptions and stereotypes toward student-athletes by non-athlete undergraduate students, Yukhymenko-Lescroart and Sharma (2022) found that undergraduate students believed that because of time constraints, student-athletes are often forced in majors such as business, communication, and sociology. Broadly, student-athletes tend to gravitate towards majors, such as business, communication, social science (e.g., Love et al., 2017; Miller, 2021; Sanders & Hildenbrand, 2010; Schneider et al., 2010), a phenomenon known as academic clustering. Academic clustering may create a misalignment between major choice and career aspirations (Navarro & Malvaso, 2016) and lead to a reduced academic motivation. Theoretically, student-athletes with low interest towards their courses are likely to engage in more academic dishonesty. Paule-Koba (2020) expressed a concern that student-athletes in majors such as communication, creative writing, or biology may be unable to make an adequate progress towards their degree; and, thus, might engage in academic dishonesty. While academic clustering is a concern in student-athletes, the positive finding is that student-athletes in majors such as communication or social sciences were not cheating any more frequently than student-athletes in other majors, except for business. This study did not explicitly examine frequency of academic misconduct as a function of selecting majors based on athletic considerations rather than on interests and career aspirations. However, findings in this study provide preliminary considerations related to this issue, which should be examined in future research.

Differences Based on Institutional Commitment

Findings showed that student-athletes who reported that they would not choose their university if they could start over reported more frequent assignment plagiarism and test cheating. Institutional commitment has been highlighted as an important factor in the academic success of college students. Aligned with the findings of Woosley and Miller (2009), who found that academic and social integration as well as institutional commitment all had a positive impact on transfer student persistence, success, and retention, the findings of this study show that institutional commitment plays a salient role in Division I student-athletes' ethical academic

conduct.

Differences across Sport Groups Based on Sport Profile and Gender

Findings showed male student-athletes on baseball teams consistently reported more frequent academic misconduct than female student-athletes on all types of academic misconduct: assignment cheating, assignment plagiarism, and test cheating. Findings indicated that male student-athletes on baseball teams also reported much more frequent assignment cheating than their male counterparts on basketball teams. Finally, findings also indicated that male student-athletes reported more assignment plagiarism than female student-athletes. Overall, these findings highlight expected gender differences, as reported by previous studies on academic misconduct with college students, though these studies also suggested that the gender differences might be driven by the differences across male and female students in the choice of major (e.g., McCabe and Treviño's 1997). Surprisingly, however, findings showed that male student-athletes on football and low-profile teams did not report more frequent academic misconduct than their female student-athletes. Thus, these findings suggest some important insights. In a study of 1,100 faculty at four Division I institutions, Kuhn and Rubin (2022) found that faculty members believed that men's football players were significantly more likely to rely on others in completing their academic work (e.g., freeriding during a group project, getting extra help from a tutor on an assignment) than men's baseball or women' basketball players. The results from this study indicated that men's football players did not report any more frequent engagement in academically dishonest behaviors than their counterparts in most men's and all women's sports. In contrast, it was men's baseball players who consistently reported significantly more frequent engagement in all types of academically dishonest behaviors than student-athletes in men's football, men's other, and women's sports. Yukhymenko-Lescroart (2021) found that there are unique contextual influences of the team and the sport environments for ethical sport conduct. Previous studies have shown how bracketed morality – accepting and enacting behaviors which are typically deemed deviant and problematic – is manifesting within the athletic contexts (e.g., Kavussanu & Ring, 2021; Shields et al., 2016), which for Division I student-athletes might also be crossing the achievement domain into academics. Indeed, Kavussanu et al. (2013) found that there is interindividual consistency in moral behaviors in sport and at university. Overall, this should be further examined in future studies.

Non-Significant Differences

Findings showed that no significant differences emerged in self-reported frequency of Division I student-athletes' academic misconduct across academic year, university type, recruitment status, and athletic scholarship status of student-athletes. Findings indicated a lack of significant differences in assignment cheating, assignment plagiarism, and test cheating across academic year. Previous studies highlighted that older students tend to cheat less (McCabe & Treviño, 1997; Mustaine & Tewksbury, 2005). Compared to undergraduate students in the general student body, student-athletes are more homogeneous age-wise because of the eligibility requirements established by the NCAA, which can potentially explain the lack of significant differences across academic year in this study. As well, McCabe et al. (2012) posited that lower classmen may justify cheating in courses that are outside of their primary areas of interest. Student-athletes who select majors based on athletic eligibility, rather than personal interests, passions, and strengths experience a misalignment of career aspiration and major choice (Navarro & Malvaso, 2016). Academic clustering is a known problematic phenomenon inherent

to some Division I teams, particularly to male, African American student-athletes in high-profile sports (Sanders & Hildenbrand, 2010). It is possible that higher rates of cheating in upperclassmen student-athletes, and in student-athletes overall (e.g., McCabe & Treviño, 1997; Mustaine & Tewksbury, 2005; Storch et al., 2002), are driven by the academic clustering.

Findings also showed that there were no differences in the self-reported frequency of academic misconduct among Division I student-athletes at public and private universities. This is similar to the findings of Brown and Choong (2005) who reported no significant differences in academic dishonesty among business students at public and private universities. Finally, while no previous study examined differences in the academic misconduct of Division I student-athletes across recruitment status and athletic scholarship status, the non-significant findings in the current study are encouraging.

Implications

There are several implications that can be drawn from findings of this study. First and foremost, results from this study suggest that team moral atmosphere is relevant to contexts beyond athletic participation. Student-athletes observe and learn from their teammates and coaches. Thus, coaches can play an instrumental role in the ethical conduct of student-athletes in various contexts of their college lives. Ethical climate on the team can have an important implication not only for moral behaviors in sport, but also in academics. Sport coaching staff need to understand their role in overall ethical conduct of student-athletes. Coaches should view their purpose and put their effort in holistic athlete development that goes beyond coaching for sport skill development and winning. Coaches should recognize the integral role they play in character development of their athletes, and use sport as life lessons to emphasize respect, fairness, and responsibility. Coaching staffs working with student-athletes should emphasize developing morally responsible conduct, demonstrating ethical decision making, and being true to the ethical values. The practical significance of this work is that coaches and athletes should be aware that the team ethical climate matters in how student-athletes conduct themselves in academic classrooms. More attention should be given to promoting atmospheres that foster athletes' ethical conduct in all domains of their collegiate life.

Second, findings in this study also suggest that first-generation student-athletes need to be supported in their academic journeys. It is likely that many first-generation student-athletes engage in academic dishonesty unintentionally due to not knowing the definitions of cheating and plagiarism. It may be further exacerbated by the lack of explicit explanation of the policy and procedures on academic cheating and plagiarism. Many undergraduate students in general, including first-generation students, may employ avoidance tools and not read the student handbook. Additionally, first-generation student-athletes may lack confidence in their abilities to be academically successful in college. Because of the absence of positive role models at home, this group of student-athletes would benefit from additional support. Therefore, institutions and athletic departments need to be deliberate about providing support structures to first-generation student-athletes. Tailoring programming for this subgroup of student-athletes may help avoid engagement in unintentional and intentional academic misconduct. Additionally, academic support services staff can work with first-generation student-athletes to help them develop better time management skills and devise test-taking strategies.

Finally, findings in this study indicated that it is important to cultivate institutional commitment among student-athletes. Division I student-athletes are much more likely to transfer than their Division II and III counterparts: among all student-athletes who transferred in 2020 and 2021, 76% were Division I student-athletes compared to 22% Division II student-athletes

and 2% Division III student-athletes (NCAA, n.d.). While a Division I student-athlete may transfer for any number of reasons, cultivating institutional commitment can help position student-athletes for long-term academic success. Institutional commitment may play a powerful role in reducing academically dishonest behaviors and promoting integrity. Consequently, institutions and athletic departments wishing to foster institutional commitment among their student-athletes should examine their recruitment strategies, practices in academic classrooms and athletic fields, and overall culture within athletic department and on campus. Student-athletes' institutional commitment can be encouraged by faculty and coaching staff who are committed to the institution themselves and, thus, may serve as role models. Furthermore, student-athletes' institutional commitments are likely to be nurtured through peer relationships. Athletic departments can create events for student-athletes, aimed at fostering sense of belonging to the athletic department and the university-at-large. Student-athletes can also be encouraged to integrate with the campus and the general student body through social and extracurricular activities. This is important to do because cultivating institutional commitment may help Division I student-athletes to view their college purpose as beyond mostly athletic.

Limitations

One of the limitations in this study is that frequency of engagement in academic misconduct was based on self-reported data. Self-reported data can be prone to social desirability bias, which is an inclination to provide responses that are viewed favorably by others. In the case of deviant behaviors, such as academic misconduct, social desirability bias can take a form of underreporting undesirable behaviors. However, this study employed the same method that is commonly used in studies of academic misconduct in college students (e.g., McCabe & Treviño, 1995, 1997; Stephens et al., 2010) and the rates of academic dishonesty was slightly higher than research with general students reported by Stephens et al. (2010), suggesting validity to survey responses. Notably, asking student-athletes to report on their teammates' deviant behaviors could potentially combat the issue of social desirability bias, such as has been done in previous studies focusing on the influences of team culture and utilizing a multilevel modeling framework (e.g., Yukhymenko-Lescroart et al., 2015). However, this method should be employed cautiously in studies of individual differences because it may lead to inflated rates of cheating behaviors, skewing the overall results (e.g., a cheating behavior by only one team member would be reported by multiple team members). The likelihood of potential social desirability bias in the current study was reduced by the procedure and method associated with data collection. Specifically, the surveys were entirely anonymous and there was no way to link survey responses to individual student-athletes, the participation in the survey was completely voluntary, and no administrative or coaching staff was present during the data collection. Additionally, the demographic questions were purposefully placed at the end of the survey to allow participants to complete the academic cheating behaviors scale first and decide how much of their personal information they wanted to share. Given that our study was conducted with Division I student-athletes only, a limitation is that its results may not necessarily be generalizable to student-athletes in other Divisions due to a number of reasons (e.g., potential differences in the primary purpose for college attendance, differences in the NCAA initial and continuous eligibility requirements). This sample was representative of the Division I student-athlete population in terms of gender. While the sample was diverse in terms of all other demographic and experiential characteristics, it was not possible to test whether the sample was representative of the Division I student-athlete population because the NCAA does not provide such data. While the study included a large sample of Division I student-athletes, it is possible that the most academically

dishonest student-athletes decided against participation in this study. Thus, the findings can be confidently generalized only to those Division I student-athletes who are willing to provide responses to surveys on academic misconduct. Another potential limitation of the present study is the limited range of behaviors. While the six specific behaviors represented three main types of academic misconduct, there are many other forms of academic dishonesty, which can be examined in future studies.

This is the first study that examined academic misconduct across the subgroups of Division I student-athletes based on their background and experiential characteristics. Thus, future efforts should be aimed at examining this phenomenon further. For example, future studies can focus on examining the engagement of academic misconduct among Division II and III student-athletes, or investigating the motivational factors to further understand how student-athletes' ethical academic conduct can be promoted and supported.

Conclusions

Student-athletes represent a unique group of undergraduate students on college campuses because they are simultaneously committed to two major sets of responsibilities. High time demands of sport participation can have unfavorable consequences on the academic achievement and success of student-athletes, and some student-athletes subgroups may be especially prone to engagement in academic misconduct. This study examined the differences in self-reported engagement in academic misconduct among subgroups of Division I student-athletes. Results showed that the Division I student-athletes at the greatest risks are those who are: first generation, viewing their main reason for attending college as mostly athletics, majoring in business, low in their institutional commitment and in high-profile men's sports. Yet, results also indicate no differences in the self-reported frequency of academic misconduct across recruitment status, academic year, athletic scholarship, and type of university. The implication of this work is in providing additional support to the groups of Division I student-athletes at risk for academic misconduct to help them achieve in the academics ethically, which can better prepare them for life after college.

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