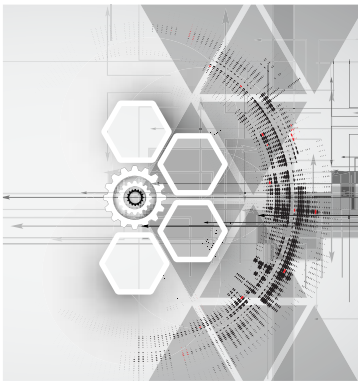
Abstract

Understanding COVID-19's negative impact on undergraduate mental well-being, this study investigates whether student-athletes reported significantly different levels of increase in mental health concerns as compared to non-athletes. Using data from the 2021 National Survey of Student Engagement's "Coping with COVID" module, the sample includes athlete and non-athlete responses from 7,274 first-year students and 5,414 seniors attending 34 NCAA-member institutions. Using Ordinary Least Squares regression analyses, the relationship between student and institutional characteristics, athlete status, and mental health was explored. Findings reveal athlete status to be a significant negative predictor of increases in mental health issues, even after controlling for other student identities, experiences, and institutional characteristics. Implications for campus practitioners are discussed.



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COVID-19 Pandemic Impact: Comparing Undergraduate Student-Athlete Mental Wellness to Non-Athlete Peers

The changing landscape of higher education during the COVID-19 pandemic spurred a substantial body of literature and research production. The research includes the effects of hybrid learning (Turnball et al., 2021), institutional financial implications (Whatley & Castiello-Gutiérrez, 2021), and further explored increasing concerns for students' mental health and wellness (Copeland et al., 2021). The pandemic flipped the world upside down, imploding families, organizations, and society with atypically high levels of grief, loss, stress, and anxiety. In 2020, the American Psychological Association (APA) surveyed the American population and found that the pandemic profoundly impacted mental health. Furthermore, stress levels and mental health concerns have varied across generations.

The APA found that 34% of Gen Z adults (ages 18-23) reported a decline in mental health during the first year of the pandemic (American Psychological Association, 2020). Additional findings pointed to Gen Z adults expressing feelings of uncertainty, loneliness, elevated levels of stress, and symptoms of depression. The survey also revealed that 87% of Gen Z adult college students felt that their education served as a significant source of stress. While the APA provided foundational statistics for the pandemic's effect on Gen Z adults and college students, additional literature supports the many reasons college students experienced uncertainty and heightened stress within academic spaces. More specifically, higher education scholars have contributed to scholarship examining the impact of the COVID-19 pandemic among collegiate student-populations (Chandler et al., 2021; Copeland et al., 2021; Graupensperger et al., 2020; Koo et al., 2023; Molock & Parchem,

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2022). This study contributes to the body of literature, using multi-institution data from the 2021 National Survey of Student Engagement (NSSE) "Coping with COVID" module to interrogate intercollegiate athlete status and mental well-being.

Theoretical Framework

The premise of this research and the forthcoming literature review was guided by sense of community theory, as it further outlines how a community can affect individual experiences and well-being. Aligning with the definition and approach presented by McMillan and Chavis (1986), for this research, a sense of community is defined with four elements in mind: membership, influence, reinforcement, and shared emotional connection. As defined by McMillan and Chavis (1986) sense of community is a "feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' need will be met through commitment to be together" (p. 9). McMillan and Chavis provided examples of how community has served as a powerful force within American culture. For instance, the scholars exemplified that while neighborhoods such as gated communities, educational environments, and politically affiliated groups have provided spaces for populations to experience belonging, influence, and reinforcement of shared values, community has also served as a space that separates subgroups of people. Although this perspective derived from the socio-political communities we live in, it is also applicable to postsecondary environments. As outlined in the literature, community differs among sub-student populations.

Literature posits that student athletes face a different social world than their nonathlete peers and isolation from the overall campus environment.

It is important to note that this theory has not been free from critique and interrogation. The contribution of McMillan and Chavis (1986) incorporated dated language and scholars have challenged the presented perspective. For example, Nowell and Boyd (2010) argued that the theory is simple, solely needs-based rather than a responsibility-based theory, and does not consider value-based behavior. However, in response, McMillan (2011) posited that responsibility is implied for members to protect and be integrated within their respective communities. Further, while written in a simplistic manner, sense of community theory is nuanced. The scholarship outlined in the following literature review indicates the various factors that influence the development of community.

Literature Review

Sense of Community & Higher Education

Higher education scholars have analyzed sense of community within the postsecondary sector. From a general perspective, recent research has examined the development of community based on student identities (Abreu et al., 2023; Cardenas et al., 2021), campus environments (Kirk & Lewis, 2015; Martinez & Munsch, 2019), and student involvement (Yates, 2020). The benefits of sense of community have also been examined. Per Davidson and Cotter (1991), from a psychological vantage point, a strong sense of community can contribute to a greater sense of well-being. Within education research, scholars have found that developing a strong sense of community can reduce student burnout and improve academic performance (McCarthy et al., 1990; Wiseman et al., 2004). While there are benefits to experiencing a sense of community, these experiences differ based on the identities that collegiate student sub-populations hold. For student-athletes, the nuances of community differ due to varying levels of institutional engagement as well as academic and athletic success.

Student-Athletes & Community

Literature posits that student-athletes face a different social world than their non-athlete peers and isolation from the overall campus environment (Clopton, 2012). Although isolation and a different social world is experienced by student-athletes, research has found that collegiate student-athletes have a greater sense of community. While this student sub-population operates in a similar environment and culture, the quality of community and social connection is nuanced, and specific to different division levels (NCAA Division I, Division II, and Division III), race, and gender (Clopton, 2012).

Although there has been minimal research directly connecting intercollegiate athletic participation and sense of community, an additional study conducted by Warner and Dixon (2011) revealed the contributing factors that fostered community among twenty former NCAA Division I, Division II, and Division III athletes. The themes from the study highlighted the benefits of participating in intercollegiate sports. Students indicated that administrative and team support, competition, social spaces to interact with other athletes, and leadership opportunities contributed to their sense of community. Although Warner and Dixon (2011) did not ground their work in McMillan and Chavis' (1986) conceptualization of sense of community, from a theoretical perspective, the results exemplify three elements of the theoretical framework adopted for this research. The student-athlete participants from that study highlighted the element of influence, as they noted making a difference in group dynamics through competition and leadership opportunities. Further, the element of emotional connection was associated, as student-athletes disclosed the presence of team support, and opportunity to share social spaces with other athletes. The last element reinforcement was exemplified through student athletes' disclosure of administrative and team support. While literature foregrounding sense of community and student athletes is sparse, higher education scholars have made connections to student athlete well-being and community development.

Mental Health & Student-Athletes

Higher education institutions and scholars have adopted a growing interest in understanding college student mental health and well-being, in particular for certain sub-populations (Copeland et al., 2021), including marginalized students and student-athletes. As researchers have historically indicated, the intercollegiate athlete experience includes demands that differ from their non-athlete peers, including devoting between 30-40 hours per week to their sport, in addition to the typical demands of being a developing college student (Gayles, 2009).

Intercollegiate athletics as an organization and an individual experience has garnered a plethora of research, as higher education leaders have called out issues associated with student-athlete experiences and well-being (Cutler & Dwyer, 2020; Egan, 2019; Gayles et al., 2018). Extant literature has examined concerns associated with academic performance (Bell, 2009; Beron & Piquero, 2016), on-campus exclusion (Watt & Moore, 2001), and stereotyping (Harper et al., 2013; Parsons, 2013), which contribute to student-athletes' sense of belonging and well-being (Gayles et al., 2018). From an organizational perspective, scholars have explored the impact of intercollegiate sports on institutions and institutional culture (Brand, 2006; Long & Caudill, 1991).

However, in tandem with the issues associated with college athletics, scholars have also highlighted the benefits of participating in intercollegiate sports. As outlined by Weight et al. (2014), scholars such as Irwin et al. (2011) have noted the educational benefits of participating in intercollegiate sports. These benefits include enhanced time management skills, self-discipline, and the ability to balance multiple roles, being both a student and athlete. Additional research conducted by Egan (2019) further supports the benefits of college athletics. Egan (2019) states that student-athletes enter new college environments with social support, including support from coaches, teammates, and support staff such as athletic trainers and academic staff.

While literature foregrounding sense of community and student athletes is sparse, higher education scholars have made connections to student athlete well-being and community development.

In more recent years, stakeholders have shifted to a focus on the mental well-being of student-athletes (Cutler & Dwyer, 2020). However, the examination of student-athlete well-being has expanded due to the COVID-19 pandemic's severe impact.

Student-Athletes Well-Being & COVID-19

In 2020, a revealing mixed-methods study found that in a sample of 195 students, 138 stated they experienced an increase in stress and anxiety due to the pandemic (Son et al., 2020). The majority of the stress indicated by participants resulted from a concern for one's health and the health and safety of loved ones. Specifically, 91% stated that COVID-19 increased levels of fear and worry regarding personal health and the health of family and close friends. Results also indicated difficulty concentrating on academic work due to various

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distractions. Close to half (46%) of student participants considered their home a distractive environment. As a result, students expressed substantial concerns regarding academic performance. Furthermore, 86% of students expressed that the pandemic caused an increase in social isolation. Due to the stay-at-home orders and quarantines, 54% shared that their social interactions considerably decreased (Son et al., 2020).

In April 2020, the National Collegiate Athletic Association conducted a study to understand how the pandemic's onset impacted student-athlete mental health. The survey-based study generated responses from 37,658 student-athletes across all three divisions, representing each athletics conference and sport. The study found a majority of student-athletes reporting high rates of constant or near-daily mental distress, with 42% of women's sports athletes and 31% of men's sport athletes reporting experiencing sleep difficulties, more than a quarter reporting a sense of loss (31% of women, 21% of men), and over a quarter of women's and 14% of men's sports participants reporting constant or nearly daily "overwhelming anxiety." As reflected above, women's sport participants reported higher rates of mental health concerns than men's across all items, and the findings also indicated that student-athletes who identified as members of marginalized communities (BIPOC, queer-spectrum, low-income students) reported higher rates of mental distress than corresponding non-minoritized communities. The NCAA also reported that, "in most instances, the rates of mental health concerns experienced within the last month were 150% to 250% higher than historically reported by NCAA student-athletes in the American College Health Association's National College Health Assessment" (NCAA, 2020). Further contributing to our understanding of student-athletes during the pandemic, Graupensperger et al. (2020) surveyed 234 student-athletes pre- and post-COVID-19 social distancing mandates. The results indicated that student-athletes who felt connected to and supported by their teammates despite being physically distant reported higher rates of mental well-being at the outset of the pandemic. Graupensperger et al.'s study suggests that the social connectedness that intercollegiate athletic teams provide can be a protective factor for student-athlete mental health and well-being. The literature on student-athlete mental health during the COVID-19 pandemic allows scholars to rethink how student-athlete experiences and socioemotional benefits can be transferred to their peers and campus communities.

As stated, the COVID-19 pandemic forced individuals to reconstruct how to develop a sense of community. The research conducted by Graupensperger et al. (2020), highlighted the benefits of social connectedness during the pandemic, specifically for student-athletes. The elements of sense of community theory are present, as student-athletes are functioning within a supportive community which provides an overall benefit to mental health. Further, the results of Graupensperger et al. (2020) and this study indicate that this community served as a buffer to some of the negative consequences on mental health experienced by college students during the pandemic.

Research Questions

Building on the research demonstrating the negative impact of the COVID-19 pandemic on undergraduate mental well-being (Soria & Horgos, 2021), this study sought to understand whether the student-athlete subgroup reported significantly different levels of mental health concerns as compared to their non-athlete peers during the 2020-21 academic year. Pre-pandemic research using data from the American College Health Association's National College Health Assessment (2021) found that NCAA student-athletes reported lower levels of mental health concerns in comparison to their full-time, traditional-aged, undergraduate non-athlete peers. Given the previous findings, the following research question was the guide for this study: *Does athlete status predict lower levels of mental health issue increases for first-year students and seniors as compared to their non-athlete peers, even after controlling for other student identities, experiences, and institutional characteristics?*

Methods

Data Source

This study uses data from the 2021 administration of the National Survey of Student Engagement (NSSE). NSSE is an annual survey administered in the spring semester to first-year and senior students at four-year colleges and universities across the country to assess students' exposure to and participation in effective educational practices (for full survey instrument, see www.nsse.indiana.edu). All students receive the core survey instrument and institutions can append additional item sets to the core survey by selecting from a menu of topical modules. Developed specifically for the 2021 administration as a response to institutional desire to assess student perceptions and experiences related to the pandemic, the "Coping with COVID" Topical Module was one such item set.

NSSE is administered every year during the spring semester, ranging from February to May based on the institution's academic calendar. Students are emailed an invitation to participate in NSSE, which includes a unique link to the survey instrument. All first-year and senior students at each of the participating institutions received this email invitation. According to the Institutional Review Board stipulations, students will only receive a maximum of five email contacts and students who have already submitted their responses do not receive the reminder emails. All survey administration is done online. The sessions do not have time limits, meaning that students can take as much time as desired.

Sample

In order to be consistent with previous research, the sample was limited to full-time enrolled, traditionally aged (<21 for first-year, <25 for senior) students from NCAA-member institutions. This left responses from 7,274 first-year students (57%) and 5,414 seniors (43%) attending 34 institutions who received both the core survey and the COVID module. Approximately 68% of the students identified as women, 29% as men, 2% as another gender identity, and 1% preferred not to respond. First generation students comprised 41% of the sample and 7% were student athletes. About 57% of respondents were White, 7% Asian/Pacific-Islander, 11% African American/Black, 8% Hispanic/Latino, 12% multiracial, 1% Native American, 1% Middle Eastern/North African, <1% Native Hawaiian/Pacific Islander, <1% as another race/ethnicity, and 3% preferred not to respond. Self-reported academic major was grouped into 10 different major fields: Arts & Humanities (9%); Biological Sciences, Agriculture, & Natural Resources (12%); Physical Sciences, Mathematics, & Computer Science (6%); Social Sciences (13%); Business (14%); Communications, Media, & Public Relations (4%); Education (8%); Engineering (5%); Health Professions (20%); and Social Service Professions (5%). Respondents represented a variety of institutional types with 50% of respondents from Doctoral institutions, 42% from Master's institutions, and 8% from Baccalaureate or other Carnegie classified institutions. These characteristics are fairly consistent with the overall patterns for NSSE respondents (NSSE, 2021). The average institutional response rate was 30%.

A scale assessing increases in mental health issues was derived from the COVID module items using exploratory and confirmatory factor analysis and was the dependent variable of interest.

Measures

A scale assessing increases in mental health issues was derived from the COVID module items using exploratory and confirmatory factor analysis and was the dependent variable of interest. Named "Mental Health Issue Increases," the scale was based on a set of seven items asking about the extent of increase in various metal health symptoms as a result of the pandemic. These items used a 5-point Likert-type scale from "Not at all" to "Very much" with the stem of "As a result of the COVID-19 pandemic, to what extent, if any, have you experienced an increase in the following?". Cronbach's alphas, model fit indices, full item text, and item loadings are detailed in Tables 1 and 2. To maintain consistency with other NSSE measures, the scale was calculated to mirror the NSSE Engagement Indicators. Each indicator is on a 60-point scale, calculated by scoring responses from each component question from 0 to 60, then taking the average (see https://nsse.indiana.edu/nsse/survey-instruments/engagement-indicators.html for details). A score of zero would mean a student responded at the bottom of the response set for every item in the scale, while a score of 60

Table 1
Model-fit Results for Confirmatory Factor Analyses

Group	N	GFI	CFI	TLI	RMSEA (C.I.)	PCLOSE	χ^2 (df)
FY Mental Health	3490	.992	.995	.988	.054 (.045, .064)	.236	100.073 (9)
SR Mental Health	4440	.996	.998	.995	.037 (.029, .046)	.993	63.515 (9)

Note: FY = first-year students; SR = senior; GFI = Goodness-of-Fit Index; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = root mean square error of approximation; C.I. = confidence interval; PCLOSE = p of close fit. Strong model fit is reflected by GFI and CFI greater than .90, TLI greater than .95, RMSEA less than .06, and PCLOSE greater than .05.

Table 2
Item Loadings for Mental Health Issues Scale

	FY Std. Regression Weight	SR Std. Regression Weight
Mental Health Issue Increases As result of pandemic, extent experienced an INCREASE in:		
Mental or emotional exhaustion	.797	.791
Depression that interfered with daily functioning	.887	.897
Anxiety that interfered with daily functioning	.890	.908
Feeling hopeless about your current situation	.882	.886
Inability to concentrate	.761	.795
Difficulty sleeping	.706	.743
Loneliness	.751	.756
Cronbach's alpha:	*.929*	*.935*

Note: FY = first-year students; SR = senior.

This [research] suggests that athlete status is making a contribution to explaining the variance in mental health issue increases, although many other student identities, experiences, and institutional characteristics are also explaining much more of the mental health scores.

would mean that a student responded at the top of the response set for every item in the scale. Thus, a higher score on the scale means a higher level of mental health issues.

The core survey instrument also collected demographic information from respondents, which was then combined with publicly available institution-level data, such as institution control (public vs. private), Carnegie classification, and institutional enrollment size. Student athlete status, the independent variable of interest, was a self-reported item asking students "Are you a student-athlete on a team sponsored by your institution's athletics department?" with response options of "Yes" or "No". The other demographic and institutional data served as control variables in the analyses. As a wide variety of higher education research notes important differences in the educational and developmental experiences of students based on these characteristics (see Mayhew et al., 2016; McCormick et al., 2013; Pascarella & Terenzini, 2005 for a review), it is critical to include them in the analyses (see Table 3).

Analyses

Ordinary Least Squares (OLS) regression analyses were used to explore the relationship between student and institutional characteristics, athlete status, and increased mental health issues. The variables were entered into the model in two blocks as a way to estimate the unique effect of each block. The demographic and institutional variables were first introduced as independent variables in the model (see Table 3 for details). The student-level characteristics included were sexual orientation, major, educational aspiration level, race/ethnicity, gender identity, disability status, course format, transfer status, first-generation status,

Table 3
Description of variables

Variable	Description/Response options
Sexual orientation [a]	Straight (heterosexual); Bisexual; Gay; Lesbian; Queer; Questioning or unsure; Another sexual orientation; I prefer not to respond
Major field [a]	Arts & Humanities; Biological Sciences, Agriculture, & Natural Resources; Physical Sciences, Mathematics, & Computer Science; Social Sciences; Business; Communications, Media & Public Relations; Education; Engineering; Health Professions; Social Service Professions; Other Majors; Undecided/Undeclared
Educational aspiration [a]	Some college/university but less than a bachelor's degree; Bachelor's degree (B.A., B.S., etc.); Master's degree (M.A., M.S., etc.); Doctoral or professional degree (Ph.D., J.D., M.D., etc.)
Race or ethnicity [a]	American Indian or Alaska Native; Asian, Black or African American; Hispanic or Latina/o; Middle Eastern or North African; Native Hawaiian or Other Pacific Islander; White; Another race or ethnicity; Two or more race/ethnicities; I prefer not to respond
Gender identity [a]	Man; Woman; Another gender identity; I prefer not to respond
Disability status [a]	No; Yes; I prefer not to respond
Course format [a]	Mostly in-person courses; Mostly remote courses (online, web-based, Zoom, etc.); Mostly hybrid or blended courses that combine in-person and remote instruction; A balanced mix of the above course types
Transfer status	0 = Started at current institution; 1 = Transfer student
First-generation status	0 = At least one parent earned a bachelor's degree; 1 = Neither parent earned a bachelor's degree
International student	0 = No; 1 = Yes
Greek status	0 = No; 1 = Yes
Living on campus	0 = No; 1 = Yes
Self-reported GPA (estimated) [b]	Continuous variable ranging from 1.67 to 4.00
Enrollment size [b]	Continuous variable for the total number of enrolled undergraduate students at institution
Control	0 = Public; 1 = Private
Carnegie classification [a]	Doctoral; Masters; Baccalaureate; Other Carnegie classification
NCAA Division [a]	Division I; Division II; Division III
Athlete status	0 = No; 1 = Yes
Mental Health Issue Increases [b]	Continuous variable ranging from 0 to 60

[a] Coded as multiple dichotomous variables (0 = not in group; 1 = in group);
[b] z-score used in regression analysis

age, international student status, Greek status, on-campus living status, and grades. Enrollment size, control (private/public), Carnegie classification, and NCAA division were included as the institutional-level characteristics. In the second step, athlete status was added. Separate models were conducted for first-year students and seniors, with mental health issue increase as the outcome. For categorical independent variables, effect coding was used, meaning each group was compared to average responses rather than an arbitrary reference group (Mayhew & Simonoff, 2015). The intraclass correlation coefficient was .025 for first-year students and .013 for seniors, indicating that only 2.5% and 1.3%, respectively, of the variation in the mental health variable was at the institution level, thus supporting aggregation of the data in the regression models (LeBreton & Senter, 2008).

Findings

In general, the second block of the OLS models, which included athlete status, explained a statistically significant but relatively low amount of variance (.3% for first-year students and .4% for seniors), compared to the first block that included the demographic and institutional characteristics (16.1% for first-year students and 14.7% for seniors; see Table 4). This suggests that athlete status is making a contribution to explaining the variance in mental health issue increases, although many other student identities, experiences, and institutional characteristics are also explaining much more of the mental health scores.

Table 4
Model-fit Results for Confirmatory Factor Analyses

	F	df	Sig.	Adjusted R^2	ΔR^2 (Athlete Status)
First-year students	18.601	52, 4653	<.001	.164	.003
Seniors	13.665	52, 3715	<.001	.151	.004

...[A]thlete status is making a contribution to explaining the variance in mental health issue increases, although many other student identities, experiences, and institutional characteristics also [explain] much more of the mental health scores.

Although the explained variance from the second block including athlete status is smaller in magnitude, the statistical significance suggests that further examination of the standardized regression coefficients is warranted. Further examination of the standardized regression coefficients (Table 5) indicates athlete status was a significant negative predictor of mental health issue increases, meaning those who self-reported as student-athletes were less likely to experience increases in mental health symptoms as compared to before the pandemic (FY β = -.064; SR β = -.066). Compared to the other significant predictor variables, these coefficients are relatively moderate in magnitude. This suggests that the experience of being a student athlete was positive in terms of the mental health of those students (or vice versa).

Although it is beyond the scope of this study to interpret every single one of the control variables in the models, there are a few worth noting here as they seem to be playing a substantial role in the overall model. For instance, students identifying as straight in their sexual orientation and students with high grades had lower mental health issue increases for both first-year students and seniors. Conversely, students with disabilities and students taking all of their courses remotely had higher mental health issue increases. The findings related to gender identity are also noteworthy. Both first-year and senior students identifying as men had much lower mental health issue increases, while first-year students identifying as women and non-binary had significantly higher mental health issue increases. This finding is troubling but also consistent with other research on how the effects of the pandemic varied by gender identity (Borrescio-Higa & Valenzuela, 2021; Hawke et al., 2021), with women and transgender individuals generally feeling greater stress and emotional burdens. Although not necessarily surprising, these differences indicate that students of varying identities experienced the pandemic in different ways and the impact was not unform across all subgroups. Institutions may need to allocate continued resources to address the mental health of students, keeping in mind that some groups may have more intense needs and concerns.

Limitations

Although the sample contains responses from a wide range of students attending multiple institutions, it is not representative of all students in the U.S. Also, this data set relied on self-reported information, which may not be completely objective. However, most studies looking at student self-reports in education suggest that self-reports and actual abilities and behaviors are positively related (Anaya, 1999; Greene, 2015; Hayek et al., 2002; Pike, 1995), and this is a very common method for preliminary screenings of mental health issues in student populations (Moore et al., 2015). The lower response rate could also be a potential source of bias in the sample, although previous research suggests that studies with lower response rates can still maintain adequate response representativeness (Fosnacht et al, 2017).

Table 5
Regression Models Predicting Mental Health Issues: Detailed Statistics

	First-year		Seniors	
	Std. β	Sig.	Std. β	Sig.
Step 1: Demographics				
Sexual Orientation: Straight	**-.197**	<.001	**-.156**	<.001
Bisexual	.036	.062	**.057**	.006
Gay	**.062**	.033	-.004	.893
Lesbian	.005	.853	.014	.586
Queer	.041	.135	.026	.309
Unsure/Questioning	.007	.767	.024	.368
Another	-.012	.628	.003	.914
Prefer not respond	**-.080**	.020	-.059	.142
Major: Arts & Humanities	.001	.940	**.049**	.027
Bio Sci.	.001	.948	.018	.435
Phys. Sci.	.019	.241	-.030	.116
Social Science	.015	.317	.012	.630
Business	-.022	.144	.002	.938
Comm.	.004	.828	**.042**	.017
Education	.013	.407	.002	.904
Engineering	-.003	.859	.009	.622
Health Prof.	-.012	.405	-.033	.207
Soc. Serv. Prof.	-.003	.830	-.009	.630
Other	**-.034**	.049	**.042**	.020
Undecided	.025	.313	-.143	.433
Ed. aspire: Less than Bachelors	.006	.792	.014	.608
Bachelors	-.007	.693	**-.051**	.018
Masters	.004	.822	.013	.548
Doctoral	-.004	.801	.013	.427
Race: Native American	-.020	.390	.006	.846
Asian	.000	.983	**.079**	.002
Black/African American	**-.055**	.009	.014	.585
Hispanic/Latino	.000	.990	**.090**	<.001
Middle Eastern/North African	.017	.521	-.035	.379
Hawaiian/Pacific Islander	.018	.695	-.127	.063
White	.031	.241	**.092**	.010
Other race/ethnicity	.004	.874	-.010	.824
Multiracial	.030	.149	.046	.087
Prefer not respond	-.024	.189	.022	.301
Gender: Man	**-.134**	<.001	**-.143**	<.001
Woman	**.050**	.026	.026	.323
Another identity	**.036**	.027	.017	.300
Prefer not respond	-.011	.804	.071	.215
Disability: No	**-.111**	<.001	**-.135**	<.001
Yes	**.050**	<.001	**.064**	<.001
Prefer not respond	**.049**	.030	**.058**	.034
Course type: Mostly in-person	**-.040**	.022	**-.082**	<.001
Mostly remote	**.049**	.006	**.088**	<.001
Mostly hybrid	.027	.079	.005	.767
Balanced mix	-.018	.236	.011	.557
Transfer student	**.039**	.004	-.001	.959
First-generation student	.024	.101	**.032**	.048
International student	-.023	.101	-.023	.151
Greek	.022	.114	**.051**	.001
Living on campus	.012	.459	.008	.600
GPA estimate	**-.178**	<.001	**-.112**	<.001
Institutional Characteristics				
Institution size	-.001	.980	-.008	.740
Institution control	.014	.486	-.011	.636
Carnegie: Doctoral	**.061**	.006	-.024	.453
Masters	-.029	.173	-.041	.198
Baccalaureate	**.056**	<.001	.013	.516
Other Carnegie	**-.134**	.014	.042	.635
NCAA: Division I	**.049**	.012	.008	.695
Division II	-.021	.210	-.022	.239
Division III	-.023	.274	.019	.422
Step 2				
Athlete	**-.064**	<.001	**-.066**	<.001

Note: Effect coding was used for categorical variables.
Significant coefficients are bolded

Additionally, there were relatively low standardized coefficients and percentages of explained variance for the models, which suggest that there are many other factors not included in the analyses influencing the variables of interest. Furthermore, given the research design, this study was unable to test for causal relationships between athlete status and mental health. Despite the use of regression terms such as "predictor" and "outcome," the results can only confirm whether they are associated and only one outcome variable can be modeled. Given these caveats, the results should be interpreted with caution. However, the strengths and contributions of this study outweigh the limitations.

From the theoretical perspective and the literature, athlete status can impact mental health and well-being through membership, influence, reinforcement, and shared emotional connection.

Implications and Study Significance

While it is recognized that the global pandemic has had a significant impact on overall student mental health and wellness (Liu et al., 2020), our findings suggest student-athletes were slightly less likely to experience increases in mental health symptoms even when accounting for demographic and institutional characteristics. This suggests a continued pattern of lower-reported mental health concerns for student-athletes as compared to their non-athlete peers. Why might athletic participation confer socioemotional benefits on undergraduate students? We expect that these benefits include the social protection and support provided by team dynamics as well demonstrated in the Graupensperger et al. (2020) study, a consistent routine and structure, and higher rates of physical activity among student-athletes generally, which has been shown to enhance wellness and mental health across all populations. This may be especially true in times of uncertainty and stress, as was experienced to some degree by virtually everyone during the pandemic. Athletic participation may have been an essential coping strategy for these students. Thus, in alignment with our theoretical framework, the results of this study nod to the four elements of sense of our community theory. As stated, athlete status was a significant negative predictor of mental health issue increases. From the theoretical perspective and the literature, athlete status can

impact mental health and well-being through membership, influence, reinforcement, and shared emotional connection. The sense of community student-athletes experience can result from their team and institutional membership. Further, literature has indicated the benefits of student-athlete membership, as their teams, coaches, and athletic administration can provide emotional and mental support. Additionally, the influence and reinforcement of student-athlete status can create community. As highlighted by Graupensperger et al. (2020), student athletes experience higher rates of physical activity. The influence and reinforcement of participating in sports and remaining physically active could positively affect the mental health and well-being of this student population. Lastly, student-athletes did not have to experience the heightened stress and grief associated with the COVID-19 pandemic in isolation. Due to their athletic membership and teammate support, a shared emotional connection could have been fostered.

Another avenue for additional research could examine the sense of community framework in the context of mental health and other important student activities, such as Greek affiliation or student government organizations.

In summary, the results of this study further support the use of sense of community theory, as student-athletes, social protection, and community provided by team dynamics had a positive impact on their mental health specifically during the COVID-19 pandemic. Thus, it is crucial to note the importance the athletic community has had on student-athletes specifically during times when mental health and well-being could have declined. Further examining the aspects of the student-athlete experience that support mental health may allow campus administrators to develop or further enhance undergraduate programming in ways that mimic the supports found within college athletics. Future research should explore continued trends in mental health, examining the pandemic's impact over time, and the specifics of how athletic participation may be serving these students. It will also be important to follow-up on potential differences for subgroups such as gender, type of sport, or other institutional athletic policies that support community building and the mental health of student-athletes. Another avenue for additional research could examine the sense of community framework in the context of mental health and other important student activities, such as Greek affiliation or student government organizations. Lastly, as outlined by the NCAA Sport Science Institute, it is important to consider mental health as a continuum (National Collegiate Athletic Association Sport Science Institute, n.d.). Thus, higher education institutions must remain abreast of mental health disorders and disruptions through continued education and action-oriented practices that support the mental health and well-being of student-athletes.

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