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RESEARCH AND QUALITY IMPROVEMENT BRIEF

How Are Our Athletes Doing? A Cross-Sectional Analysis of Student-Athlete Mental Health in Fall 2022 at a Maine Division III University

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Anxiety and depression are a growing concern among college students¹ and athletes, but the extent of the problem is not fully understood.² The National Collegiate Athletic Association (NCAA) has recognized this risk and tried to implement a campaign to facilitate management of mental health issues.³ Current research conducted by Wolanin et al found that 25% of college-student-athletes showed depressive symptoms,⁴ whereas Yang et al found 21%.⁵ According to the Center for Collegiate Mental Health 2019 Annual Report, the average rates of student self-reported anxiety and depression increased over the past 8 years.¹ There is limited data assessing mental health of student-athletes during preseason, in-season, and postseason. Also, according to Armstrong et al, “there have not been any large, systematic studies with rigorous methodology on depression in athletes.”⁶ Therefore, we aimed to assess: “how are our athletes doing?” The significance of this research is salient because in 2020, suicide was the second leading cause of death for people ages 10 to 14 and 25 to 34 years.¹ Also, in one study, suicide represented 7.3% of all-cause mortality among student-athletes in the NCAA.⁷ With more robust data on the mental health of college-student-athletes, the NCAA can implement better strategies and resources, and athletes can feel better supported and comfortable in seeking care offered by campuses.

METHODS

We conducted a cross-sectional analysis of all student-athletes at the University of Southern Maine in Gorham, ME, who completed a pre-participation exam in Fall 2022. Using the electronic health record, we collected the following variables: sport, age at time of pre-participation exam, sex, race and ethnicity, and scores for the Patient Health Questionnaire-9 (PHQ-9)⁸ and Generalized Anxiety Disorder-7 (GAD-7).⁹ We used validated, established cut-offs to group the PHQ-9 and GAD-7 scores into none, mild, moderate, and severe categories of depression (PHQ-9) and anxiety (GAD-7). We then grouped the mild and moderate categories into a single group for analysis, due to the smaller percentages. Descriptive statistics of both the PHQ-9 and GAD-7 questionnaires were computed among all athletes, and chi-square tests were used to examine the mental health measures separately across age and sex categories.

Both the MaineHealth and University of Southern Maine Institutional Review Boards approved the study (#1953115-2).

RESULTS

In Fall 2022, 450 student-athletes completed a pre-participation exam. Among the student-athletes, 32.7% were ages 17 to 18 years, 41.8% were ages 19 to 20 years, 21.3% were ages 21 to 22 years, and 4.2% were ages 23 to 24 years. Also, 45% were female and 55% were male (Table 1). Athletes were 4.7% Black, 86.9% White, 7.1% other/multiple, and 1.3% missing/not reported.

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Table 1. Student-Athlete Demographics and PHQ-9 and GAD-7 Scores (N = 450)

Athlete characteristics	Total, No. (%)	Mild or moderate PHQ-9, No. (%)	P value	Mild or moderate GAD-7, No. (%)	P value
Age, y					
17-18	147 (32.7)	15 (10.2)	.025	24 (16.3)	.016
19-20	188 (41.8)	14 (7.5)		19 (10.1)	
21-22	96 (21.3)	1 (1.0)		5 (5.2)	
23-24	19 (4.2)	0 (0)		0 (0)	
Sex					
Female	202 (44.9)	20 (9.9)	.013	35 (17.3)	<.0001
Male	248 (55.1)	10 (4.0)		13 (5.2)	

Abbreviations: GAD-7, Generalized Anxiety Disorder-7; PHQ-9, Patient Health Questionnaire-9.

For PHQ-9 scores, 5.1% scored mild, 1.6% scored moderate, and no athlete scored severe. For GAD-7 scores, 9.6% scored mild, 1.1% scored moderate, and no athlete scored severe (Table 2). Younger age was associated with higher rates of mild-to-moderate PHQ-9 scores ($P = .025$) and GAD-7 scores ($P = .016$) (Table 1). Female sex was also associated with higher PHQ-9 scores ($P = .013$) and GAD-7 scores ($P < .0001$) (Table 1). When we evaluated associations by sport, we noticed wide variation in the number of student-athletes with depression and anxiety, but the numbers were too small to draw conclusions.

Table 2. PHQ-9 and GAD-7 Scores Among Student-Athletes (N = 450)

Score, category (range)	No. (%)
PHQ-9	
None/Minimal (0-4)	420 (93.3)
Mild (5-9)	23 (5.1)
Moderate (10-14)	7 (1.6)
GAD-7	
None/Minimal (0-4)	402 (89.3)
Mild (5-9)	43 (9.6)
Moderate (10-14)	5 (1.1)

Abbreviations: GAD-7, Generalized Anxiety Disorder-7; PHQ-9, Patient Health Questionnaire-9.

DISCUSSION

We found that among athletes at a Division III University in Southern Maine, rates of moderate

depression (1.6%) or anxiety (1.1%) were fairly low, but rates of mild depression (5.1%) and anxiety (9.6%) were more common. Our findings are somewhat lower than observed in other studies. This study examined depression and anxiety reporting among a Division III school using both the PHQ-9 and GAD-7 instruments, which is likely attributed to the varying funding opportunities across NCAA Divisions. According to current research by Stokowski et al, mental health studies need to include Division III student-athletes¹⁰ to better understand the demands on these athletes at this level of competition. We also found that younger and female athletes were more likely to score higher on depression and anxiety scales. This finding can be used to target interventions for these groups.

By assessing these mental health scores at the start of the academic year, the hope is to intervene early to help all college-student-athletes. However, a limitation of the study is that the pre-participation exam was collected before athletics commenced. Therefore, the rates may be higher mid-season or mid-year. Also, lower scores may be noted during the pre-participation exam because many student-athletes have gone home for the summer. At home, students may feel less burned out, both academically and physically, and may have access to mental health resources. This idea favors the effort of repeating these questionnaires at different times in the academic year, which would evaluate potential changes over time.

CONCLUSIONS

Being a student-athlete comes with many challenges that go beyond the classroom, and added stressors can place these athletes at risk of psychological health problems. Based on our analysis, younger and female athletes at one Maine university were more likely to have depression and anxiety. Graupensperger et al noted that on college campuses in the United States, mental health resources have increased. These resources include “routine screening, utilization of peer health education, and involvement of partners on campus in strategic planning for mental health initiatives.”¹¹ Our findings will hopefully add to the growing research on mental health in college athletics and be integrated into campus health resources.

Conflicts of Interest: None

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