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The Effect of COVID-19 on the Mental Health of College Athletes

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excellent education.

Abstract

This research aimed to explore how the mental status of student athletes at the University of South Carolina has been affected by the unprecedented COVID-19 pandemic. A total of 61 student athletes between the ages of 17 and 24 participated in the study and completed a series of questions including the Depression-Anxiety-Stress Scale 21 (DASS-21) and the Group Environment Questionnaire (GEQ). Independent samples t-tests and descriptive analyses were used for comparisons between gender and age. The results showed that female athletes reported statistically significantly higher levels of anxiety and stress than male athletes (p = 0.049 and p =0.02) and upperclassmen athletes reported statistically significantly higher levels of anxiety than underclassmen athletes (p = 0.01). However, team cohesion was not significantly different between men and women or upper and underclassmen. Students also reported that COVID-19 has negatively affected their well-being and most student athletes feel very disconnected to other students at the university besides their teammates. Implications for the future include finding ways to improve the mental health of women and upperclassmen as well as conducting more research to find out if mental health rates differ between athletes at other universities and between those who did/did not test positive for COVID-19.

Introduction

Mental health is a prevalent issue for most college students, especially student athletes. In addition to the immense stress that comes with being away from home and taking rigorous classes, college athletes are typically under a massive amount of pressure to perform their given sport to the best of their ability every single day. They have more eyes on them than a nonathlete student, especially from their coaches. A recent study reported that overall student athletes have significantly higher mental health stigma compared to their non-athlete peers (Kaier, et al., 2015). One article aimed to study the prevalence of depression in collegiate athletes since the depression prevalence among the college age group is higher than that of other groups (Wolanin, et al., 2016). The authors studied 465 participants at a single university over 3 consecutive years to gather their results, using the Center for Epidemiological Studies Depression Scale (CES-D) as well as a demographic questionnaire, and calculated prevalence of depressive symptoms and relative risk ratios by gender and sport. The results concluded that nearly ¹/₄ of the student athletes in their large cross-sectional sample exhibited clinically relevant depressive symptoms, and that female college athletes experienced significantly more symptoms than males.

Previous studies have shown that women are at least twice as likely to suffer from mental health disorders such as major depressive disorder, social anxiety disorder, panic disorder, and generalized anxiety disorder (Altemus, 2006). The present study could help to perhaps fill a gap in the literature on whether or not female athletes have struggled more than male athletes with mental health during the COVID-19 pandemic. In general, studies have shown that mental health conditions increase in the early 20s, specifically when people are adapting to college, so

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this study aims to explore mental health differences among the college continuum by comparing upper and underclassmen (Beiter, et al., 2015).

A pre-covid study compared college athletes' personal and perceived public mental illness stigma to nonathlete students based on the participation of 304 different NCAA Division I athletes and 103 non-athletes (Kaier, et al., 2015). The results showed that overall, the athletes reported significantly higher levels of stigma compared to non-athlete peers. Furthermore, the devastating effects of mental health have ultimately taken the lives of many NCAA athletes. After the tragic suicides in 2014 of track star Madison Holleran and OSU football player Kosta Karegeorge, ESPN discussed the treatment disparities between mental and physical health issues for college athletes stating, "Physical injuries such as concussions and knee injuries draw routine and widespread study by doctors and researchers, yet a dearth of information about athletes and mental illnesses exists" (Born, 2017, p. 1222). Yet, many people with mental health issues, especially athletes, often do not seek help. According to a recent article, 33% of all college students experience significant symptoms of either depression, anxiety, or other mental health conditions and only 30% seek help. However, only 10% of college athletes with mental health conditions seek help (Velasco, 2017). It is likely that athletes are less likely to seek help because they are under the pressure to uphold both physical and mental strength, and no athlete wants to appear weak or injured to their coaches and risk impacting their playing time or their coaches' perceptions of them. For example, stigma has been identified has a main barrier to athletes seeking help and those who seek mental health help may be viewed by coaches and teammates as weak (Gulliver, et al., 2012). The study concluded that athletes may likely benefit from education that can help to reduce the stigma of mental illness and reduce prejudices against those seeking treatment for mental illness.

When our country went into lockdown after the COVID-19 pandemic hit in the spring of 2020, schools and businesses were closed which inevitably put a halt on all sporting events and practices. COVID-19 has had a detrimental impact on the mental health of many people, especially the collegiate athletes whose normal routines have changed drastically and have had stricter isolation guidelines than the average person. A narrative review of the impact of the COVID-19 pandemic on the management of mental health symptoms in elite athletes developed recommendations to guide the manifestations of those symptoms. The authors emphasized how COVID-19 has created new strains on athletes unlike they have ever experienced, which likely increases their vulnerability to mental health symptoms. This article relayed information about types of care needed for athletes with mental health issues such as telehealth services since athletes are often traveling. The article mentions that the pandemic presents an opportunity for research on new methods of mental health care for athletes (Reardon et al., 2020).

A study conducted in 2020 examined how the mental health of student athletes associates with their teammate social support, connectedness, and changes to athletic identity before COVID-19 vs. during COVID-19 (Graupensperger, et al., 2020). 234 student athlete participants completed surveys preceding the pandemic lockdown and 135 participated in a follow up a month after lockdown began. The results concluded that the student athletes who received more social support and had more connectedness with their teammates reported less dissolution of their athletic identity as well as better mental health statuses. This article points out that although physical distancing can help the spread of coronavirus, social interactions and support may be key to preventing widespread mental health issues among college athletes. Since COVID-19 has knowingly exacerbated mental health disparities, this study will also seek to evaluate how team cohesion has also been impacted by the pandemic. The team cohesion findings may add to previous literature that team cohesion is associated with a collective sense of confidence (Tenenbaum & Yang, 2014).

Using a quantitative study, this thesis aims to determine the impact COVID-19 has had on the mental health of college athletes at the University of South Carolina. The study focuses on two aims, one being the differences in mental health between gender and age and the other being team cohesion and dynamics. I hypothesize that females will report higher levels of mental health symptoms (stress, anxiety, depression) and that upperclassmen will report higher levels of mental health symptoms than underclassmen due to the stress that comes with graduating and figuring out the next step to take after college. This research will hopefully be significant to universities worldwide in helping them find strategies to improve the mental health of college students and student athletes alike.

Methods

Participants: The intended participants of this study were undergraduate male and female student varsity athletes who attend the University of South Carolina Columbia Campus.

Recruitment: Participants were recruited through email, text, and social media outlets such as Instagram and Snapchat over a time span of 1 month (March 2021). The inclusion criteria included participation in an official men's or women's sport and enrollment at the University of South Carolina.

Procedures: The survey was administered to participants via Google Forms (See Appendix A). The survey included questions from the Depression Anxiety Stress Scale (DASS-21) to assess mental health status. Questions from the Group Exercise Questionnaire (GEQ) subscale called Individual Attractions to the Group–Social (ATG-S) assessed group cohesion and team members' impressions of social interactions within the group. The survey also included demographic questions and COVID-19 related questions asking how much they feel COVID-19 has impacted their mental health, how connected they feel to other students at UofSC besides their teammates, and what COVID-19 protocols have been like for their specific team. The survey took about 5 minutes to complete.

Measures:

Depression, Stress, and Anxiety. Using the DASS-21 scale to measure three separate but interrelated areas (depression, anxiety, and stress), participants answered questions on a scale of 0-3, 0 being that the statement does not apply to them at all and 3 being that the statement applies to them most of the time (Lovibond, 1995). The DASS-21 results were scored using sums with separate scores for depression, stress, and anxiety. The mental health questionnaire included 19 items from the DASS-21 scale. Some questions measured anxiety levels; for

example, "I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)." The questions measuring depression included statements including "I couldn't seem to experience any positive feeling at all," and the stress scale included statements such as "I found it hard to wind down." Overall, the DASS-21 was easy to administer and has excellent reliability with Cronbach's alpha values of 0.81, 0.89 and 0.78 for the subscales of depressive, anxiety and stress respectively (Coker, et al., 2018).

Team Cohesion. The Group Exercise Questionnaire (GEQ) includes four subscales to measure group cohesion, but for the purpose of keeping the survey brief, only the subscale ATG-S (Individual Attractions to the Group- Social) was used to assess team involvement and cohesion (Carron, et al., 1985). 4 questions were implemented from the ATG-S subscale to assess the individual attractions to the group, such as "some of my best friends are on this team" (Whitton & Fletcher, 2014). Participants answered each question on a scale from 1-9, 1 being strongly disagree and 9 being strongly agree, which were combined to create an overall average score. In past studies, the Cronbach's alpha values for the social cohesion subscale shows moderate reliability: .64 (Whitton & Fletcher).

COVID-19 Related Questions. The COVID-19 related section consisted of 2 questions asking about participants' perceptions of their overall mental health and connectedness: "Overall, how much do you feel that COVID-19 has negatively affected your well-being?" and "How connected do you feel to other students at the university besides your teammates?" which were answered on a scale of 1-9, 1 being not at all/very disconnected and 9 being extremely/very connected, respectively. One question asked if the participant had ever tested positive for COVID-19 and two other items asked about the strictness of the team's quarantine protocol and

how much their season was affected by COVID-19 ("How many of your athletic events have been cancelled/moved during your season?").

Demographics. The demographics section asked participants about their age, gender, grade in school, race, sport, and season (spring, fall, or both).

Analysis Plan

Descriptive analyses were conducted to compare means and standard deviations across men/women and upperclassmen/underclassmen. Independent sample t-tests (two-tailed) were used to evaluate the significance of the group differences in mental health outcomes and team cohesion, using an alpha of 0.05.

Results

Table 1 describes the demographics of the sample size which includes 61 total participants. 60.7% of the participants were female and 39.3% of the participants were male. The majority of the sample size was white (73.8%) with 14.7% black and 11.5% multiracial. 57.4% of the sample size were underclassmen and 42.6% were upperclassmen. Table 2 displays the variety of different varsity sports teams represented in the study.

Table 3 provides mean and standard deviation differences between the DASS-21 and cohesion levels of males and females. Depression scores between males and females were not significantly different, t(31) = 0.01, p = .0.99. Anxiety scores between males and females were significantly different with female scores being higher, t(31) = 1.17, p = 0.049. Stress scores between males and females were significantly different with female scores being higher, t(31) = 1.17, p = 0.049. Stress scores between males and females were significantly different with female scores being higher, t(31) = 2.66, p = 0.02. Table 4 provides mean and standard deviation differences between the DASS-21 and cohesion levels of upperclassmen and underclassmen. Depression scores between upperclassmen and underclassmen were significantly different, t(31) = 0.53, p = 0.60. Anxiety scores between upperclassmen and underclassmen were significantly different with upperclassmen scores being higher, t(31) = 2.87, p = 0.01. Stress scores between upperclassmen and underclassmen were significantly different with upperclassmen were not significantly different, t(31) = 2.15, p = 0.06.

Team cohesion levels between males and females were not significantly different, t(31) = 0.50, p = 0.62. Team cohesion levels between underclassmen and upperclassmen were not significantly different, t(31) = 1.15, p = 0.50.

When asked "how connected do you feel to other students at the university besides your teammates," the mean score for the sample was 3.61 on a 1-9 scale with a standard deviation of 2.27 (1 very disconnected and 9 being very connected). These results conclude that on average

student athletes feel barely connected to other students at the University of South Carolina besides their own teammates.

When asked "overall, how much do you feel that COVID-19 has negatively affected your mental well-being," the majority of student athletes (57.4%) answered that they feel that COVID-19 has affected their mental well-being an extreme amount (7-9 on a scale from 1-9). Not one student reported that COVID-19 has not affected their mental well-being at all. A mean of 6.57 with a standard deviation of 1.80 concludes that the mental-health of many student athletes is very negatively affected by the COVID-19 pandemic.

When asked how many of their athletic events had been cancelled/moved during their respective seasons, 13.1% indicated that all of their events had been cancelled/moved, 42.6% indicated that most of their events had been cancelled/moved, 39.3% indicated that all of their events had been cancelled/moved, and 5% indicated that none of their events had been moved/cancelled.

When asked about the strictness of their team's protocol on quarantining/staying in their team bubble, 49.2% responded that their team's protocol is "very strict," 32.8% responded that their team's protocol is "somewhat strict," and 18% responded that their team's protocol is "not strict at all."

When asked if they had ever tested positive for COVID-19, 54.1% indicated that they have tested positive for COVID-19 before and 45.9% indicated that they have never tested positive for COVID-19.

Discussion/Conclusion

I hypothesized that female athletes would have higher levels of anxiety, stress, and depression than males and that upperclassmen would have higher levels of anxiety, stress and depression than underclassmen. My hypothesis was supported by my results which concluded that females reported statistically significantly higher levels of anxiety and stress than males. However, levels of depression were not significantly different between men and women. Furthermore, upperclassmen athletes reported statistically significantly higher levels of anxiety than underclassmen athletes, but there were no significant differences in depression or stress. Although mental health differences were shown between groups, team cohesion was not significantly different between groups. These results may suggest that team cohesion may not be enough to buffer the negative effects of COVID-19 on mental health. This may provide new insight into studies on group cohesion.

Disparities between mental health of athletes of different sport and season were not able to be concluded due to the small sample size of some sports and limited number of spring athlete participants. On the other hand, nearly 50% of participants answered that their team's protocol is "very strict" on quarantine/staying in their team bubble. This result may suggest that stricter quarantine restrictions may lead to worsening levels of mental health due to lack of human interaction and socialization, which could be explored in future longitudinal studies. Consistent with past studies which have highlighted the importance of social support for improving mental health among college athletes, more research is needed to address the past practices for supporting student athletes during quarantine/future pandemics. (Graupensperger, et al.). The result that majority of student athletes feel that COVID-19 has negatively impacted their mental health an extreme amount coincides with previous research that COVID-19 has brought many new strains onto student athletes which heavily increases their vulnerability to mental health symptoms (Reardon, et al., 2020). This data signifies that more research needs to be conducted on how to improve mental health in collegiate athletes, specifically females and upperclassmen. An implication for future research includes reducing the stigma surrounding athletes seeking help for mental health issues, considering that only 10% of student athletes with mental health issues seek help (Velasco, 2017).

The strengths of this study include the variety of different sports represented and the validated measures that were used. The limitations of the study include the generalizability due to the majority of participants being of the same race, the lack of spring athletes, and smaller sample size. Another limitation is the cross-sectional design of the study because of which I cannot infer causality. Furthermore, this is preliminary data which would need to be replicated with a larger sample.

In conclusion, this study found that female athletes have higher levels of mental health symptoms than males and that upperclassmen have higher levels of mental health symptoms than underclassmen. It was also concluded that the majority of student athletes at UofSC feel very disconnected from other students at the university and that COVID-19 has very negatively impacted their mental well-being. In future research, it would be helpful for collegiate athletes everywhere for ways to decrease anxiety and stress even with their busy schedules, specifically females and upperclassmen. It would also be interesting to see if there is a correlation between declined mental health statuses and certain sports as well as whether or not testing positive for COVID-19 affects mental health status. I hope this research will implicate a need for more coping strategies not just for student athletes, but for anyone who is struggling emotionally with the COVID-19 pandemic or in general.

Factor	Total Sample (%)
Age	
n	61
Mean age	20 yrs
% Under 17 years old	0
% 17-18 years old	14.7
% 19-20 years old	52.4
% 21-22 years old	26.3
% 23-24 years old	6.5
Gender	
n	61
Female	60.7
Male	39.3
Ethnicity	
n	61
Native American Indian or Alaska Native	0
Asian	0
Black or African American	14.7
White	73.8
Hispanic/Latino	0
Multiracial	11.5
Other	0
Grade	
Freshman	24.6
Sophomore	32.8
Junior	13.1
Senior	29.5

 Table 1. Demographics of Survey Sample

THE EFFECT OF COVID-19 ON COLLEGE ATHLETES

Factor	Total Sample (%)				
Sport					
n	61				
Football	4.9				
Basketball	16.4				
Baseball	3.3				
Golf	1.6				
Soccer	32.8				
Cheerleading	29.5				
Lacrosse	11.5				
Season					
n	61				
Spring	13.1				
Fall	44.3				
Both	42.6				

Table 2. Responses to: "Which UofSC sport are you involved in?"

Table 3. Mean Differences Between Men and Women

M=mean; SD=standard deviation

	N	= 24	N = 37				
	Ν	/lale	Female				
	М	SD	М	SD			
Depression	7.292	7.298	7.304	6.166			
Anxiety	5.833*	5.723	7.541*	5.342			
Stress	6.500*	4.854	9.729*	4.273			
Cohesion	6.938	1.059	7.101	1.490			

Note: * indicates a mean difference with p<0.05

Ν

Table 4. Mean Differences between Underclassmen and Upperclassmen

M=mean; SD= standard deviation

	Under	class	Upperclass			
	м	SD	М	SD		
Depression	7.714	7.517	8.577	5.24		
Anxiety	5.171*	4.756	9.154*	5.718		
Stress	7.4	5.024	9.885	4.003		
Cohesion	ohesion 6.864		7.269	1.471		

Note: * indicates a mean difference with p<0.05

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Appendix A

Survey via Google Forms:

Understanding the Relationship Between COVID and the Well-Being of Student Athletes

The goal of this study is to determine how the coronavirus pandemic has impacted the mental health of student athletes at the University of South Carolina for an honors thesis project. The questions are derived from the Depression Anxiety Stress Scale-21 (DASS-21) and the Group Environment Questionnaire (GEQ). All answers will remain ANONYMOUS and aid in research for the UofSC Honors College. Any questions or concerns, contact Student Researcher Molly McArdle (mcardlem@email.sc.edu).

Please answer the following questions in regard to how you have been feeling during the past week. This survey is intended for student athletes ONLY.

* Required

Mental Health Questions

The rating scale is as follows:

0: Did not apply to me at all - NEVER

1: Applied to me to some degree, or some of the time - SOMETIMES

2: Applied to me to a considerable degree, or a good part of time - OFTEN

3: Applied to me very much, or most of the time - ALMOST ALWAYS

I found it hard to wind down	*				
	0	1	2	3	
Did not apply to me at all- NEVER	0	0	0	0	Applied to me very much, or most of the time- ALMOST ALWAYS

I was aware of dryness of my mouth *										
	0	1	2	3						
Did not apply to me at all- NEVER	0	0	0	0	Applied to me very much, or most of the time- ALMOST ALWAYS					
I couldn't seem to experience any positive feeling at all *										
	0	1	2	3						
Did not apply to me at all- NEVER	0	0	0	0	Applied to me very much, or most of the time- ALMOST ALWAYS					
l experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion) *										
	0	1	2	3						
Did not apply to me at all- NEVER	0	0	0	0	Applied to me very much, or most of the time- ALMOST ALWAYS					

I found it difficult to work up the initiative to do things *										
	0	1	2	3						
Did not apply to me at all- NEVER	0	0	0	0	Applied to me very much, or most of the time- ALMOST ALWAYS					
I tended to over-react to sit	uations	s *								
	0	1	2	3						
Did not apply to me at all- NEVER	0	0	0	0	Applied to me very much, or most of the time- ALMOST ALWAYS					
l experienced trembling (eg, in the hands) *										
l experienced trembling (eg	, in the	hands	5) *							
l experienced trembling (eg	, in the 0	hands	5) * 2	3						
l experienced trembling (eg Did not apply to me at all- NEVER				3	Applied to me very much, or most of the time- ALMOST ALWAYS					
Did not apply to me at all-				3	most of the time- ALMOST					
Did not apply to me at all-	0	1	2	3	most of the time- ALMOST					
Did not apply to me at all- NEVER	0	1	2	3	most of the time- ALMOST					

I was worried about situations in which I might panic and make a fool of myself *											
	0	1	2	3							
Did not apply to me at all- NEVER	0	0	0	0	Applied to me very much, or most of the time- ALMOST ALWAYS						
I felt that I had nothing to look forward to *											
	0	1	2	3							
Did not apply to me at all- NEVER	0	0	0	0	Applied to me very much, or most of the time- ALMOST ALWAYS						
l found myself getting agitat	ted *										
	0	1	2	3							
Did not apply to me at all- NEVER	0	0	0	0	Applied to me very much, or most of the time- ALMOST ALWAYS						
l found it difficult to relax *											
	0	1	2	3							
Did not apply to me at all- NEVER	0	0	0	0	Applied to me very much, or most of the time- ALMOST ALWAYS						

I felt down-hearted and blue *										
	0	1	2	3						
Did not apply to me at all- NEVER	0	0	0	0	Applied to me very much, or most of the time- ALMOST ALWAYS					
I felt I was close to panic *										
	0	1	2	3						
Did not apply to me at all- NEVER	0	0	0	0	Applied to me very much, or most of the time- ALMOST ALWAYS					
I was unable to become enti	nusiast	ic abo	ut any	'thing '	*					
	0	1	2	3						
Did not apply to me at all- NEVER	0	0	0	0	Applied to me very much, or most of the time- ALMOST ALWAYS					

I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat) *

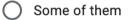
	0	1	2	3	
Did not apply to me at all- NEVER	0	0	0	0	Applied to me very much, or most of the time- ALMOST ALWAYS
l felt scared without any goo	od reas	son *			
	0	1	2	3	
Did not apply to me at all- NEVER	0	0	0	0	Applied to me very much, or most of the time- ALMOST ALWAYS
l felt that life was meaningle	ss *				
	0	1	2	3	
Did not apply to me at all- NEVER	0	0	0	0	Applied to me very much, or most of the time- ALMOST ALWAYS

Your Personal Involvement With Your Team Answer these questions in reference to your most recent season (Spring 2021 or Fall 2020) The rating scale is as follows: 1: Strongly disagree 2-4: Disagree 5: Indifferent 6-8: Agree 9: Strongly agree For me, my team is one of the most important social groups to which I belong * 1 2 3 4 5 6 7 8 9 OOOOOOOOO Strongly Agree Strongly Disagree I am not going to miss the members of my team when the season ends. * 1 2 3 4 5 6 7 8 9 OOOOOOOOO Strongly Agree Strongly Disagree I am not happy with the amount of playing time I get. * 2 3 4 5 6 7 8 9 1 O O O O O O O O O Strongly Agree Strongly Disagree

Some of my best friends are on this team. *											
		1	2	3	4	5	6	7	8	9	
Strongly Dis	agree	0	0	0	0	0	0	0	0	0	Strongly Agree
COVID-Based Questions The rating scale is as follows: 1: Not at all 2-3: Barely at all 4: A little bit 5: Indifferent/Don't know 6: A decent amount 7-8: A lot 9: Extremely Overall, how much do you feel that COVID has negatively affected your mental well-being? *											
	1	2	3	4	Ļ	5	6	7	8		9
Not at all	0	0	0	\sim)	0	0	0	С		C Extremely
How connected do you feel to other students at the university besides your teammates? *											
		1	2	3	4	5	6	7	8	9	
Very discon	nected	0	0	\bigcirc	0	0	0	\bigcirc	\bigcirc	\bigcirc	Very connected

How many of your athletic events have been cancelled/moved during your season? *

	lone	of	them
--	------	----	------



Most of them

All of them

How strict is your team's protocol on quarantine/staying in your own team bubble? *

Ο	Somewhat	strict
---	----------	--------

Very strict

Have you ever tested positive for COVID-19?*

) Yes

) No

Demographics	
What is your gender? *	
O Female	
O Male	
O Prefer not to say	
What grade are you in? *	
O Freshman	
O Sophomore	
Junior	
O Senior	
What is your age? *	
Your answer	

How would you describe your race? *	
	Native American Indian or Alaska Native
	Asian
	Black or African American
	Native Hawaiian or Other Pacific Islander
	White
	Hispanic/Latino
	Prefer not to answer
	Other:

Which UofSC sport are you involved in? *

Football
Basketball
Baseball
Golf
Soccer
Swimming
Cheerleading
Tennis
Track and Field
Softball

A	re you a spring or fall athlete? *
(Spring
() Fall
(Both

THANK YOU!

Thank you so much for participating in this survey. All information will be reported at the group level and data collected will remain protected.