

Change-Event Steals “Athlete” from “College Athlete”: Perceived Impact and Depression, Anxiety, and Stress

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Introduction: This research sought to establish the impact of the change-event of COVID-19 on college athletes and members of other campus groups (eg, marching band, eSports, Reserve Officers Training Corps). The specific purpose was to assess the perceived impact and impact on mental health (eg, depression, anxiety, and stress).

Methods: The survey battery presented a total of 37 items. Demographic, sport or group-specific, and academic-related questions were included alongside the assessment of psychological well-being coming from the Depression Anxiety Stress Scale-21.

Results: There were 249 participants completing some or all of the survey battery. It is notable that 172 participants (69.1%) indicated “a lot has changed”. Common one-word responses to the experience surrounding this change-event were feeling disappointment, upset, frustrated, sadness, annoyance, and depression. Life events that conjured similar magnitude of emotion included significant injury, surgery, and losing a loved one. There were no differences by sport for the depression subscale, but 110 participants reported elevated scores and females had a higher mean depression subscale score compared with males. Differences between sports for the anxiety subscale were negated when evaluating Bonferroni correction for multiple tests, but 69 participants reported elevated scores and females had a higher mean anxiety subscale score compared with males. There was no difference by sport for the stress subscale, but 77 participants reported elevated scores and females had a higher mean stress subscale score compared with males.

Discussion: Authors urge the campus and athletics community to be diligent in monitoring the holistic wellness of college athletes and members of other campus groups. Mainly, we contend it is important to consider that COVID-19 is a significant and widespread change-event, and other change-events are known to have significant impact. We should consider that COVID-19 may be acutely and longitudinally impactful to the American college student.

Keywords: COVID-19, sport psychology, multidisciplinary team, academics

Introduction

For the first time in modern history, in the fall of 2020, American University college athletes and members of other campus groups (eg, marching band, eSports, Reserve Officers Training Corps; ROTC) arrived at the fall semester with widespread uncertainty about their participation in workouts, practices, rehearsals, and competitions. The change-event was COVID-19, a crisis with global pervasiveness. With purposed intention, research from a number of disciplines has been focused on

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COVID-19 and the broader effects. The pandemic has affected nearly every aspect of global life in ways subtle and profound, as well as acute and accumulative. Notable to many around the United States (US) and world was the cancellation or postponement of collegiate and professional sports. This abrupt suspension of sport has now been identified as a critical moment when the great majority of American society grasped the magnitude of the pandemic. Indeed, sports leagues worldwide have felt the effect, with a penultimate example being the postponement of the 2020 Olympic games.¹

Most individuals connect with sport as consumers or through recreational participation. Fewer have participated in sports at the collegiate or professional level. Fewer-still have had their participation in collegiate or professional sports disrupted due to a global pandemic. American college athletes and members of campus groups during the COVID-19 crisis represent a specific population, which may have been uniquely affected—both psychologically and academically—by this unprecedented change-event. Given the disruption that COVID-19 caused to sports schedules, teams, athletes, competitions, and rehearsals, it is important to investigate the affects the COVID-19 crisis has had on the mental health of these individuals.

Viewing COVID-19 as an athletic change-event may offer us a distinct but beneficial perspective as we attempt to offer effective, purposeful care to those impacted. Samuel and Tenenbaum have highlighted the dynamic nature of the athletic career, describing change-events as ranging from negative (eg, injury) to positive (eg, transition to a higher level of play) in emotional profile.² Change-events have recognized connections with athletic identity,³ and require athletes to appraise the change-event in context of their career, available coping resources, and more.² Recently, Samuel and colleagues described the COVID-19 crisis as a non-controlled and unpredictable, longitudinal, and multifaceted change-event,⁴ which is also how severe injuries are classified.⁵ However, the COVID-19 crisis is a widespread and shared experience among athletes across the globe—it is near-universal change-event.⁴

Injury as a change-event can have a negative impact on mental health of athletes—including depression, anxiety, and confusion or loss of athletic identity.^{6–9} Feelings of isolation and loss of opportunity may exacerbate these symptoms and affect identity.^{6,10} Depressive symptoms may manifest shortly after an injury or in the future when consequences and limitations of the injury become

more apparent.^{6,10} Researchers using the Depression Anxiety Stress Scale (DASS-21)¹¹ found that depression, anxiety, and stress were common in patients who had experienced a significant injury. They also found that low DASS-21 scores (ie, less symptomatic) at baseline were predictive of lower scores during 3- and 6-month follow-ups; while high levels at baseline (ie, more symptomatic) were predictive of higher scores during follow-ups.¹² This is an important area, and research on the impact of the COVID-19 crisis on the mental health of college athletes and other campus groups in the US is warranted.

There is limited, but intriguing evidence of the impact of the loss of sports due to COVID-19 on athletes. A survey among semi-elite and elite South African athletes revealed that over half (52%) felt depressed and (55%) struggled to stay motivated to exercise.¹³ Among a diverse group of Italian athletes, a country markedly impacted by the virus in the early months of the pandemic, di Fronso et al (2020) report elevated perceptions of stress and dysfunctional psychobiosocial states (eg, anger, anxiety), and lower levels of functional psychobiosocial states (eg, pleasant, operational). These effects were more pronounced in female athletes.¹⁴ These findings begin to illustrate the disruption COVID-19 had on sports and athletes outside of the US. It is useful to investigate college athletes and the effects of the COVID-19 crisis compared to the general college student population given the unique commitments for college athletics related to their athletic and academic roles.

The National Collegiate Athletic Association (NCAA) is a recognized governing body of American University athletics (as well as a few non-US universities). In April 2020, the NCAA administered the Student-Athlete COVID-19 Well-Being Survey, which collected data about perceived physical and mental well-being from over 37,600 college athletes from all major divisions (I, II, and III), sports, and conferences.^{15,16} More than 70% of respondents endorsed positive attitudes regarding their ability to pass spring 2020 courses. Simultaneously, the rate of reported mental distress since the onset of the pandemic was high. Notable findings included: sleep difficulties (over one-third), feeling sadness and a sense of loss (over one-quarter), and feelings of depression (1 in 12). The survey also revealed the most commonly sought-after information by participants was about the fall semester and return to play.¹⁶ While limited in quantity, available research suggests the COVID-19 crisis may have had

a significant impact on the psychological well-being of college athletes.

Our research sought to examine the psychological impact of the COVID-19 crisis (the change-event) on college athletes and members of other campus groups. The purpose of our study was to assess the perceived psychological impact on these students. These included measures examining their levels of depression, anxiety, and stress. We hypothesized that, when compared to population norms, our sample would report significant elevations in (H1) depressive symptoms, (H2) anxiety, and (H3) stress. We also hypothesized that (H4) the most common qualitative responses to open-ended questions about respondents' wellbeing would reflect psychological distress or concerns (or both). Lastly, we hypothesized that (H5) average (mean) depressive, anxiety, and stress elevations would significantly differ between these teams and/or groups. This hypothesis is primarily based on athletes being in and out of season at different times. This is particularly relevant given the relatively short timespan over which data was collected.

Methods

Subjects and Timing of Collection

The Human Subjects Committee of the University of Central Missouri's (UCM) Institutional Review Board approved this investigation. All aspects of the work were conducted in compliance with standards of the Declaration of Helsinki. College athletes were invited to participate through direct (emails to coaches, forwarded to athletes) and indirect (forwarded emails, postings in group-related organizational mediums, word of mouth) mechanisms. Informed consent was obtained prior to study commencement. Inclusion criteria were being 18 years of age or over and an active participant on either a UCM NCAA sponsored sport team or UCM sponsored group (eg, members of UCM Marching, eSports, or ROTC). Data collection occurred between mid-August and early October 2020.

Survey

The survey battery presented a total of 37 items, including a short demographic questionnaire, which asked respondents to report their age, sex, sport, role/position/group within their sport, and academic classification. The battery also included a set of multiple choice and qualitative questions to assess the impact of the COVID-19 crisis on our sample (eg, "What is ONE word that describes how

you feel about 'COVID-19s' impact?" and "Have your training and/or competition 'been affected by COVID-19'?"). The psychological well-being of the volunteers in our sample was assessed using the DASS-21.

The DASS-21 scale is a norm-based assessment, which has demonstrated suitable psychometric properties,^{17,18} including established reliability for depression ($\alpha = 0.81$), anxiety ($\alpha = 0.89$), and stress ($\alpha = 0.78$).¹⁹ Scores on the three subscales are aggregated, scaled, and compared to cutoff values for normal, mild, moderate, severe, and extremely severe elevations of depression, anxiety, and stress. Subscale scores range from 0 to 42. Depression subscale scores between 0–9 are considered normal; subscale scores between 10–13 (mild), 14–20 (moderate), 21–27 (severe), and 28+ (extremely severe) reflect elevated depressive symptoms. Anxiety subscale scores between 0–7 are considered normal; subscale scores between 8–9 (mild), 10–14 (moderate), 15–19 (severe), and 20+ (extremely severe) reflect elevated anxiety symptoms. Stress subscale scores between 0–14 are considered normal; subscale scores 15–18 (mild), 19–25 (moderate), 26–33 (severe), and 34+ (extremely severe) reflect elevated stress symptoms.

Those meeting age inclusion criteria (ie, 18 years or older) were directed to answer the remaining 36 questions. Selection of location of participation and pacing through the survey was chosen at participants' discretion. The full survey was estimated to take under 12 minutes according to Qualtrics, the online survey tool by which the mobile-, tablet-, and computer-accessible survey was distributed. An optional final question invited respondents to supply a coded set of numbers that were linked to their academic record and provided approval for solicitation of follow-up outreach by the research team.

Sample

Approximately 755 individuals, spanning 12 sports (baseball, basketball, bowling, cheer, cross country, football, golf, soccer, softball, track and field, volleyball, and wrestling) and 3 campus groups (eSports, marching band, and ROTC), received the survey. A total of 314 individuals clicked on the survey. Two coaches were deemed ineligible, and another 60 individuals did not consent (and therefore never entered the survey). An additional three individuals were under the age of 18. Thus, 249 volunteers participated (males=125; females=124), partially ($n=13$; males=5; females=8) or fully ($n=236$; males=120; females=116), in the completion of the survey battery.

Statistical Analysis

Investigators completed all statistical analyses using IBM SPSS Statistics 25 (SPSS, Chicago, IL). Separate univariate ANOVAs were used to determine if there were significant differences between sports for the DASS-21 subscales. For addressing violation of Levene's test, Kruskal–Wallis was used; a Bonferroni correction was used for multiple tests. Independent t-Tests were used to examine differences between males and females on each subscale. Data are

reported as frequencies or means and standard deviations. An a priori alpha level was set to $\alpha = 0.05$.

Results

Team, sex-specific, and sample characteristics of the 249 participants completing some or all of the survey battery are displayed in Table 1. The sample was near evenly split between males and females (50.2% and 49.8%, respectively) and was 20.0 (± 1.6) years old (range 18–27 years old).

Table 1 Team, Sex-Specific, and Total Sample Frequency, Demographic, and Academic Details

Variables	Sample	Academic Classification					Perceived Extent of Impact		
	Males and Females	Fr	So	Jr	Sr	Grad	None/Few Things Changed	Some Things Have Changed	A Lot Has Changed
Baseball	M = 12	3	4	2	2	1	3	4	5
Basketball	M = 10	1	0	3	5	1	1	4	5
	F = 11	3	2	1	3	2	0	3	8
Bowling	F = 7	2	1	1	3	0	2	3	2
Cheer	M = 3	2	0	0	1	0	0	0	3
	F = 12	5	4	3	0	0	0	1	11
Cross Country	M = 3	0	2	1	0	0	0	0	3
	F = 5	3	1	1	0	0	0	0	5
eSports	M = 12	0	5	5	2	0	1	10	1
Football	M = 34	6	9	12	6	1	0	3	31
Golf	M = 6	0	3	0	3	0	0	1	5
Marching band	M = 9	2	3	3	1	0	0	4	5
	F = 21	6	4	7	4	0	0	6	15
ROTC	M = 6	0	0	0	6	0	1	0	5
	F = 4	0	0	0	4	0	0	0	4
Soccer	F = 17	5	6	4	1	1	1	2	14
Softball	F = 11	2	5	3	1	0	1	2	8
Track & Field	M = 18	1	4	6	5	2	3	6	9
	F = 22	3	4	6	8	1	3	9	10
Volleyball	F = 14	2	7	2	2	1	0	0	14
Wrestling	M = 12	4	2	4	1	1	0	3	9
TOTALS	All = 249	50	66	64	58	11	16	61	172
	M = 125	19	32	36	32	6	9	35	81
	F = 124	31	34	28	26	5	7	26	91

Notes: Values are provided as frequencies.

Abbreviations: Fr, freshman; So, sophomore; Jr, junior; Sr, senior; Grad, grad; ROTC, Reserve Officers Training Corps.

Among the many details, it is notable that 172 participants (69.1%) indicated “a lot has changed” and another 61 participants (24.5%) indicated “some things have changed.”

The most common one-word responses to an open-ended question about the impact of COVID-19 (“What is ONE word that describes how you feel about your activity/sport being cancelled or postponed?”) were disappointed/disappointment ($n=40$), upset/upsetting ($n=22$), frustrated/frustration ($n=17$), sad/sadness ($n=17$), annoyed/annoying ($n=9$), and depressed/depression ($n=8$). When asked to reflect on life events that conjured a similar magnitude of emotion, the open-ended question led to weighty reflections (“Think about your initial feeling when you heard about the cancellation/postponement of sports. What other event(s) experienced in your life felt similar? [As in the same emotion or same level of emotion]”). The event brought back emotions related to “significant injury”/“injury and surgery” ($n=31$), “no event in life compares to the emotion” ($n=28$), “losing a loved one”/“finding out they are sick” ($n=9$), “losing a championship game”/“event” ($n=8$), “having no remaining purpose without sports” ($n=6$), or “experiencing a breakup”/“divorce” ($n=5$).

DASS-21 subscale scores are shown in Table 2. Team averages (means) for the depression subscale scores ranged from the eSports team’s 5.5 (normal) to cheerleading’s 14.6 (moderate depression). Nonetheless, ANOVA results detected no effect of sport/campus group on depressive symptoms $F(14,221)=1.238$, $p=0.249$. The grand mean for all groups (10.1) was within the mild depression range. As exploratory notes, 110 participants had mild ($n=29$), moderate ($n=54$), severe ($n=10$), or extremely severe ($n=17$) depression scores, and females (11.5 ± 9.2 ; mild depression) had a higher mean depression subscale score ($p=0.016$) than males (8.7 ± 8.7 ; normal).

On the anxiety subscale, Levene’s test revealed unequal variances, and Kruskal–Wallis revealed a significant difference between sports $\chi^2(14)=25.362$, $p=0.031$. Differences were found between baseball and several sports or groups (cheerleading, volleyball, soccer, softball, and marching band), eSports and several sports or groups (volleyball, soccer, softball, and marching band), basketball and several sports or groups (soccer and marching band), football and marching band, and track and field and marching band. However, all differences were found to be nonsignificant after Bonferroni correction. Team averages for the anxiety subscale scores ranged from the baseball team’s 1.8 (normal) to marching band’s 10.4 (moderate anxiety). The overall grand mean was 5.9 (normal). Median scores are also

reported for this subscale. As exploratory notes, 69 participants had mild ($n=13$), moderate ($n=28$), severe ($n=13$), or extremely severe ($n=15$) anxiety scores, and female’s anxiety scores (7.3 ± 7.0) were significantly higher ($p=0.001$) than males (4.5 ± 6.3); although, both means remained in the normal range for anxiety.

Team averages for the stress subscale scores ranged from bowling’s 6.3 (normal) to marching band’s 16.4 (mild stress). Nonetheless, ANOVA results detected no effect of sport/campus group on stress $F(14,221)=1.550$, $p=0.095$. The grand mean for all groups (11.8) was within the normal range. As exploratory notes, 77 participants had mild ($n=21$), moderate ($n=38$), severe ($n=11$), or extremely severe ($n=7$) stress scores, and females (13.5 ± 9.0) had significantly higher stress subscale scores ($p=0.003$) than did than males (10.0 ± 8.9) although, both groups were in the normal range for stress.

Discussion

Our research sought to examine the psychological impact of the COVID-19 crisis (the change-event) on college athletes and members of campus groups. We hypothesized that our sample would report significant elevations in (H1) depressive symptoms, (H2) anxiety, and (H3) stress as measured by the DASS-21 when compared to population norms. We also hypothesized that (H4) the most common qualitative responses to open-ended questions about respondents’ wellbeing would reflect psychological distress, concerns, or both, which align with the DASS-21 elevations hypothesized above. Lastly, we hypothesized that (H5) average (mean) depressive, anxiety, and stress elevations would significantly differ between teams/groups. A power analysis revealed that our sample was not of adequate size to conduct a multivariate analysis. This is a limitation of this study, it means we were unable to test for interactions of sex, sport, and other variables. This limitation could be overcome by using a larger sample or longitudinal data in a future study.

Our results partially confirmed our hypotheses: mean scores across teams/groups evidenced elevations in depressive symptoms (H1), confirming this hypothesis. However, there was no elevation across teams in anxiety symptoms or stress symptoms, which failed to confirm other hypotheses (H2 and H3). Additionally, some of the differences between teams/group were widely varied in their average DASS-21 scores, and our analyses did not reveal statistically significant differences between these scores when

Table 2 Team, Sex-Specific, and Total Sample M \pm SD for the DASS-21 Depression, Anxiety, and Stress Subscales and Sport-Specific and Total Sample Median Scores for the Anxiety Subscale

Variables	Sample	Depression Subscale		Anxiety Subscale			Stress Subscale	
	Males and Females	M \pm SD	Range	M \pm SD	Range	Median	M \pm SD	Range
Baseball	M = 12	9.0 \pm 7.6	0–20	1.8 \pm 2.3	0–8	2.0	9.3 \pm 6.7	2–20
Basketball	M = 9	3.3 \pm 4.1	0–12	1.1 \pm 2.0	0–6	2.0	5.8 \pm 7.4	0–18
	F = 11	10.7 \pm 9.8	2–32	6.4 \pm 6.7	0–22		11.3 \pm 9.3	2–30
Bowling	F = 6	7.7 \pm 11.2	0–30	6.3 \pm 8.1	0–22	5.0	6.3 \pm 7.5	0–20
Cheer	M = 3	18.0 \pm 2.0	16–20	12.0 \pm 10.6	4–24	4.0	26.7 \pm 4.6	24–32
	F = 11	14.0 \pm 12.5	0–38	5.5 \pm 6.6	0–18		13.1 \pm 7.1	0–22
Cross Country	M = 3	6.0 \pm 6.0	0–12	2.7 \pm 3.1	0–6	3.0	4.7 \pm 4.2	0–8
	F = 5	8.4 \pm 5.5	2–14	6.8 \pm 6.9	0–16		13.6 \pm 7.0	2–20
eSports	M = 12	5.5 \pm 6.6	0–20	3.2 \pm 5.1	0–16	0.0	6.8 \pm 7.0	0–24
Football	M = 31	9.9 \pm 9.6	0–34	4.8 \pm 5.9	0–22	2.0	9.9 \pm 8.4	0–26
Golf	M = 6	12.7 \pm 9.8	2–24	8.7 \pm 11.8	0–30	5.0	12.3 \pm 12.2	2–34
Marching band	M = 8	14.3 \pm 7.4	2–22	11.0 \pm 10.4	0–28	8.0	16.0 \pm 8.0	4–26
	F = 19	13.1 \pm 9.5	0–36	10.1 \pm 8.6	0–32		16.5 \pm 8.5	4–40
ROTC	M = 6	5.0 \pm 5.2	0–12	2.3 \pm 2.7	0–6	4.0	9.0 \pm 10.0	0–28
	F = 4	10.5 \pm 4.4	4–14	7.0 \pm 4.8	4–14		15.5 \pm 6.0	8–22
Soccer	F = 15	13.9 \pm 7.3	6–28	6.5 \pm 4.3	2–16	6.0	14.5 \pm 7.2	6–34
Softball	F = 9	9.6 \pm 6.1	0–20	8.4 \pm 6.6	0–16	10.0	11.6 \pm 9.2	0–26
Track & Field	M = 18	6.9 \pm 9.3	0–28	3.4 \pm 5.1	0–20	2.0	8.8 \pm 9.9	0–30
	F = 22	11.3 \pm 10.7	0–38	7.4 \pm 8.4	0–28		15.9 \pm 11.6	0–38
Volleyball	F = 14	10.3 \pm 8.0	0–34	6.6 \pm 6.0	2–24	5.0	10.6 \pm 8.6	4–38
Wrestling	M = 12	9.5 \pm 10.8	0–30	5.0 \pm 5.1	0–14	3.0	11.3 \pm 8.1	0–22
TOTALS	All = 236	10.1 \pm 9.0	0–38	5.9 \pm 6.8	0–32	Overall = 4.0	11.8 \pm 9.1	0–40
	M = 120	8.7 \pm 8.7	0–34	4.5 \pm 6.3	0–30		10.0 \pm 8.9	0–34
	F = 116	11.5 \pm 9.2	0–38	7.3 \pm 7.0	0–32		13.5 \pm 9.0	0–40

Notes: Values are provided as frequencies or means \pm standard deviations (M \pm SD) unless noted under median.

Abbreviations: M, males; F, female; ROTC, Reserve Officers Training Corps.

adjusted for multiple comparisons. Therefore, hypothesis 5 (H5) was not confirmed.

Regarding our fourth hypothesis (H4)—brief responses to an open-ended question revealed that qualitative responses were congruent with the depressive and stress symptoms reported on the DASS-21. The words most frequently used to describe respondent's feeling in the midst of the crisis were "disappointed," "upset,"

"frustrated," and "sad." Respondents equated the magnitude of emotion as similar to "significant injury," "losing a loved one," "having no purpose," and some said it was like nothing they had ever experienced before. We believe this confirms our hypothesis, as the dominant (modal) terms align with depressive and stress symptomology.

Exploratory analysis of the data revealed some unexpected findings. First, females consistently scored higher

on the three subscales. This may indicate that female college students have felt the disruption of the crisis more than their male counterparts. This finding aligns with reports from di Fronso and colleagues who found that female athletes had more pronounced perceptions of stress (and dysfunctional psychobiosocial states) compared to male athletes.¹⁴ Contrary, this could also be viewed in light that males mental health research suggests that males in every age group are less likely to report mental health concerns or seek help for them.²⁰ One final consideration is that clinical research on males depressive symptomology does suggest that many males, especially those adhering to traditional male roles, like athlete, are more likely to express their depression as anger and avoidant, addictive, or high-risk behaviors,^{21,22} which are not assessed on the DASS-21.

Second, far more important than significant mean scores, we must not forget that teams are comprised of individuals, and the exploratory analysis revealed there were 110 participants who had elevated scores on the depression subscale, 69 participants who had elevated scores on the anxiety subscale, and 77 participants who had elevated scores on the stress subscale. These are meaningful ratings, and this is more important than statistical differences between sports and groups. We urge the campus community and those in direct contact with college athletes and members of other campus groups to consider the heavy impact that COVID-19 may have had on individual members of the cohort, not solely on the group as a whole. Our exploratory findings highlight the need for attuned focus on assessment of each individual's mental health. The patternless feature of those who suffer from mental health issues makes it difficult to detect individuals in need. If we are not careful, unhealthy individuals may hide in the context of cohort-based clusters. Campus resources should be mobilized, and campus personnel should be alerted to the need of greater individual assessment and support in this area of wellness.

Literature attests to the magnitude of influence that change-events such as injury have on athletes. Depression, anxiety, and stress are recognized outcomes of these types of changes and can occur acutely or over-time.⁶⁻⁹ The present research can be used as a foundation to assist discussion among multidisciplinary and influential professionals who are in regular contact with these students (eg, coaches, athletic trainers, academic advisors). We predict the need for future research that focuses on the long-term psychological, sport, academic, and career-

preparedness from the change-event of COVID-19. Evidence from the NCAA Student-Athlete COVID-19 Well-Being Survey follow-up study (conducted mid-fall on nearly 25,000 student-athletes) supports this speculative statement.²³ The follow-up study revealed continued barriers to participation, a maintenance of elevated levels of mental health concerns (eg, mental exhaustion, anxiety, feelings of being depressed), and a disturbing increase in concerns about the future (eg, graduation time, career planning). Over 6 in 10 seniors felt the change-event had adversely influenced their career planning. A sliver of positivity was that some mental health concerns declined from spring to fall. A final note of import was that fully virtual settings were associated with worse outcomes (eg, heightened mental health concerns, feeling less likely to stay on target and pass classes).²³ The athletic, advising, and academic communities may be able to address this issue by emphasizing safe return to face-to-face classes. We encourage others to investigate the psychological, academic, and career outcomes of those affected by the crisis over the next several years.

A third idea is that the NCAA rule-changes associated with COVID-19 should be considered alongside our findings.²⁴ Extended college eligibility, broadened opportunity for transfer, and the impact on scholarships may promote longevity, but also portability, for affected college athletes. Will impacts of COVID-19 and/or altered NCAA rules operate additively or synergistically to impact academic and athletic concerns, resulting in mass movement? Time will reveal the veiled happenings, but we do know that athletic concerns are a prime reason for enrollment and transfer-related decisions among division I basketball athletes.²⁵ Investigations into transfer behavior and resulting success of those who reestablish their roots should continue, expanding to other sports, level of athletics, and academic and career outcomes.

We know athletes in this study experienced abrupt changes to their athletic career, some an indefinite pause and others a finality. We have showcased the above-mentioned, negative mental health outcomes related to this change-event. Some are now resuming their activities, and the negative factors may be subsiding. On the contrary, the negative impact from COVID-19 could be superseding the resumption of their playing career. The potential of these divergent outcomes reinforces the importance of providing resources for these athletes throughout their collegiate career (and beyond). When sports are lost due to the change event of injury, recognized

psychological consequences include depressive symptoms, anxiety, and confusion^{6–9} the onset of which may occur quickly or over time.^{6,10} Given the results of this study, university personnel may see a rise in symptomology among athletes and other students for weeks, months, or years following COVID-19's disruption.

Campus leaders, including those in athletic leadership, should be prepared to refer college athletes and other students to mental health services when the need arises. Further, these leaders should actively seek ways to promote awareness and assessment of mental health among college athletes and members of other campus groups. Coaches, group directors, academic support staff, and the sports medicine team should be informed of their frontline standing in this detection—they may be in positions to discern changes in returning college athletes and members of other groups that are telling of distress.²⁶ Campus resources will dictate to some extent what options campus leaders and support staff are able to utilize, but awareness of the present findings is likely not enough. Plans for some form of proactive, holistic care is needed.

COVID-19 has disrupted the routines of these individuals, and the loss of routine needs to be considered. Prior to the COVID-19 pandemic, barriers toward academic success were known.^{27,28} What is more, the normal approach to help college athletes (eg, athlete-specific academic support services, excessive assistance, emphasizing athletics over academics in season) has questionable success, as the focus is often on helping athletes maintain eligibility, rather than developing skills for long-term independence and career success.²⁹ Athletes may encounter more school-related messages than their peers, but there is no noticeable change in grades, and other researchers have suggested that these practices may be more ornamental than practical.^{30,31} Robbins and Bentley-Edwards recently offered research-supported suggestions that may be implemented to assist college athletes,²⁹ and we speculate the same suggestions could be tailored and applied to the other student groups in our research. First, athletes report higher performance when professors communicate high expectations and offer supportive comments.³² Athletes need to feel they are competent and capable students when they arrive to classrooms.²⁹ Second, athletes are more likely to live up to academic expectations when coaches communicate belief in their ability.²⁹ Coaches are known to be one of the more impactful stakeholders in the life of the athlete.³³ Barnhill has described the perceived psychological contract that

athletes have with coaches. When coaches fail to deliver on obligations or promises, relationships with coaches (and the team) are altered substantially.³⁴ It may be a critical time to ascertain what college athletes and members of other campus groups believe their coaches or directors should be doing to support each individual. Scott and colleagues provide recommendations and actualizable strategies for coaches as they work to optimize team climate to support their athletes.³⁵

Academic support staff are also positioned to convey crucial messages to college athletes and members of other groups. They might best focus on effective studying, time management, and the holistic development of college athletes and members of other groups³⁶ to empower them toward self-realization in what is academically and personally valuable.²⁹ Huml has recently pressed the notion that connections with non-athlete students may be important for sense of belonging on campus.³⁷ Further, transfer students may feel a lesser sense of belonging,³⁷ which sport leaders and coaches should recognize. Rettig and Hu (2016) provide insight that we may improve educational outcomes in some athletes by focusing on a supportive campus environment and first-year transition program.³⁸ By extension, a first-year transitional program may support members of other groups who convene during the summer preceding the fall term. For college athletes, summer bridge programs have been posited as one mechanism to support the transition.²⁸ Given the elevated levels of stress and depressive symptoms reported in our study, we speculate that bridge programs might be particularly practical in the near-term.

Conclusion

The purpose of our research was to examine perceived and psychological impact of the COVID-19 crisis (the change-event) on college athletes and members of campus groups. We perceive that there is value in documenting perceived and metric-normed outcomes during this unique time. Authors urge campus community and those in contact with college athletes and related groups to be diligent in monitoring the holistic wellness of these members. We presently note that female members of these teams are reporting higher levels of depression, anxiety, and stress, than males. Mainly, we contend that it is important to consider that COVID-19 is a significant change-event, and other change-events are known to have significant impact. We should consider that

COVID-19 may be acutely and longitudinally impactful to the American college student.

Disclosure

The authors report no conflicts or perceived conflicts of interest related to this work.

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