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Abstract

When COVID-19 was declared a global pandemic, collegiate athletic departments faced the difficult decision to postpone or cancel sport activities. Aside from concerns of transmission, disruptions in sport impacted college athletes broadly. This study was designed to investigate athletes' experiences during the pandemic toward developing a better understanding of athletes' attitudes about COVID-19 and returning to sport. Participants included 245 varsity collegiate athletes across NCAA sports and divisions who voluntarily completed an online survey between August and October 2020. Collegiate athletes reported significant impacts of COVID-19 on areas including mental health, physical fitness, and academic progress. Approximately one in four participants reported testing positive for COVID-19 at some point between the onset of the pandemic and completing the survey. Less than half of the respondents, however, endorsed worry about exposure to COVID-19 while participating in their sport. Most collegiate athletes reported satisfaction with their athletic department's response to COVID-19 and adherence to guidelines and recommendations. Temperature checks, sanitation of equipment, and regular COVID-19 testing were among the top recommended procedures endorsed by participants. Some athletes, however, reported concerns about the feasibility of safety procedures for their particular sport. Overall, respondents demonstrated an eagerness to return to sport despite COVID-19-related risks.

Keywords: *athlete mental health, college athlete, COVID-19, pandemic, return to sport*

When the coronavirus disease 2019 (COVID-19) was declared a global pandemic on March 11, 2020, university and college varsity athletic departments were confronted with the difficult decision to postpone or cancel sport seasons and activities (e.g., practice, conditioning). Decision-making particularly was challenging for the National Collegiate Athletic Association (NCAA) since its 1,098 active member institutions span all regions of the United States, across multiple sports, and with seasons at different periods of the year (Marabito et al., 2020). While the NCAA is the overseeing organization, the 142 individual conferences (e.g., Big Ten, Sunbelt, Pac-12) are autonomous and have the right to enact conference-specific policies (Marabito et al., 2020). As such, response to the pandemic has varied across conferences and institutions. For example, the Pacific-12 (Pac-12) and Southeastern Conference (SEC) announced cancellation of their spring sports on March 14 (Pac-12 Conference, 2020; SEC, 2020). It was not until March 29, however, that the Big 12 conference officially announced its cancelation of athletic events (Big 12 Conference, 2020). Decisions made by the NCAA, individual conferences, and active institution members ultimately impacted the nearly 500,000 college athletes who participate in NCAA-sponsored sports.

The collegiate athlete population is especially important to consider during the global COVID-19 pandemic for several reasons. As athletes, they are at high risk for sport-related COVID-19 contraction. Since COVID-19 is transmitted by close contact through respiratory droplets (WHO, 2020), varsity sport practices and competitions are potential hotbeds for contraction and spread of COVID-19 (Andreato et al., 2020). As college students, they also are at high risk for COVID-19 contraction related to the modified learning environment. With educational institutions swiftly shifting to remote learning in response to the

pandemic, many college students, including college athletes, relocated to live with family, friends, or partners. Of the 37,658 NCAA college athletes included in a 2020 study, 84% reported living away from campus and with parents, family, or a significant other once learning became remote and campuses closed (NCAA, 2020a). For some, this relocation involved air travel out of state, which posed an increased risk for contracting COVID-19 (Daon et al., 2020). When returning to sport activities, athletes traveling back to their institution may therefore pose an even greater risk of spreading COVID-19. Further, since even asymptomatic carriers of COVID-19 are infectious (He et al., 2020; Sayampanathan, 2021), athletes who are infected but experience minimal or no symptoms unknowingly may spread COVID-19 to teammates, competition opponents, and athletic staff.

The purpose of the current study was to get a better understanding of the college athlete experience during the COVID-19 pandemic to help inform institutional decision-making. Specifically, this study aimed to investigate the ways in which college athletes have been affected by disruptions in sport and by the pandemic in general. It also sought to assess which aspects have caused most concern for college athletes, to determine whether college athletes have been satisfied with their institution's/athletic department's response to COVID-19, to explore factors motivating comfort returning to sport, to explore college athletes' perceptions about the risks of COVID-19 contraction and spread, and to discover their attitudes toward various safety measures when returning to play.

In addition to gathering information about current experiences and the state of college athletics we can look to history to inform decision-making. While a global pandemic has not been encountered since the Spanish flu pandemic in 1918, the response may provide some guidance. For instance, in response to the Spanish flu, Major League Baseball (MLB) mandated that players, coaches, umpires, and fans in attendance wear masks and the regular season was shortened, ending in September and with 24 fewer games (Bachman, 2020). The National Hockey League (NHL) proceeded with the Stanley Cup Finals; however, as a result of several players contracting the Spanish flu, the Finals were canceled after Game 5 (Alper, 2020). Among NCAA institutions, 18 colleges canceled their football seasons and others played only several games (Veras, 2020). That said, not all college sports were canceled, and many players and spectators became ill (Ching, 2020). Masks and social distancing, just like today, were the primary methods of self-protection and transmission reduction for spectators at college sporting events (Barnhart, 2020). Initial cancellation and suspension of college and professional sports in 2020 contrasts the continuation of many sports in 1918, which may have prevented exacerbation of the first wave of COVID-19 (Nauright et al., 2020).

Guidelines and best practices for safety in college athletics were released by the American College Health Association (ACHA) in May 2020 (ACHA, 2020a). The NCAA released guidelines for resocialization of collegiate sports in November 2020. Guidelines by both associations included physical distancing, use of personal face coverings, testing athletes before returning to sport even if asymptomatic, non-touch temperature checks prior to participation, limited travel, spectators/fans not in attendance, and sanitization of equipment. In anticipation of upcoming seasons or lifted suspensions, most college athletes returned to practice and training in the fall (ACHA, 2020b). Updated guidelines from the ACHA in December 2020 recommended the use of outdoor practice and training spaces. It also emphasized the need for spreading awareness and education about COVID-19 and including students in the planning of safer campuses to increase adherence to public health recommendations (ACHA, 2020b).

Aside from sport-related safety guidelines, the ACHA made recommendations for protecting the mental health of college students (ACHA, 2020a; ACHA, 2020b). For college athletes, this especially is important since, aside from the obvious concerns of

COVID-19 transmission, disruptions in sport impact collegiate athletes' mental health. For instance, since the onset of the pandemic, one in three NCAA athletes reported sleep difficulties, one in four experienced feelings of sadness and loss, and 49% had negative feelings about their ability to maintain academic progress (NCAA, 2020a).

Mental and physical health both are included in the broad reach of COVID-19's impact on college athletes (NCAA, 2020a). The NCAA Student-Athlete COVID-19 Well-Being Survey was an online survey conducted between April 10 and May 1, 2020, that examined the pandemic's impact on collegiate athletes' mental and physical well-being (NCAA, 2020a). The main finding from the study was that a majority of college athletes reported significant mental health issues since the beginning of the pandemic. Particularly, more than 25% reported feeling sadness and a sense of loss, and more than one-third reported sleep difficulties. Participation in team sports has been associated with improved social and psychological health with numerous positive outcomes, including emotional social support, higher self-esteem, a sense of belonging, social networking, and social interaction (Anderson et al., 2019). With canceled and suspended competition seasons and limited or no sport activities, collegiate athletes were left with a void. According to a study by Graupensperger and colleagues (2020), college athletes who received less social support and reported less connectedness with teammates because of the pandemic demonstrated poorer mental health and well-being and experienced more dissolution of their athletic identity.

The interruption of sport competition and training routines also affects an athlete's physical fitness (Andreato et al., 2020). Without the guidance and supervision of coaches and athletic trainers, athletes are forced to train on their own. Considering the emotional impact of the pandemic on college athletes along with the uncertainty of when sport would resume, finding the motivation to maintain a training routine was difficult for many (NCAA, 2020a). The NCAA (2020a) reported 40% of athletes surveyed indicated they lacked the motivation to train. According to another study investigating changes to training habits among high school and collegiate-level athletes since the outset of the pandemic, Jagim et al. (2020) found a decrease in motivation to continue training was reported by 68% of participants. The study also revealed a 33% reduction in training frequency. Local regulations and a lack of access to appropriate training facilities also presented barriers to college athletes' training routines (NCAA, 2020a). Changes in weight and physical fitness due to COVID-19 limitations became a possibility for college athletes.

In culmination with COVID-19-related mental and physical health concerns, college athletes demonstrated significant concern about academic progress as the landscape of learning changed drastically (NCAA, 2020a). In their Student-Athlete COVID-19 Well-Being Survey, the NCAA (2020a) inquired about academics. Of the 37,658 college athletes who responded, 99% reported that their courses had shifted to remote, online instruction and nearly half of those participants indicated they lacked confidence in their ability to keep up with classes. Some athletes also cited increased workloads once the shift to online learning was made. It also should be noted that remote learning interfered with academic progress during the pandemic since not all students had access to reliable internet and technology (Lederer et al., 2021). Prior to the pandemic, students who did not have adequate internet access or technology at home could use on-campus libraries or business centers. Relatedly, COVID-19 also has emphasized socioeconomic disparity and financial concerns for many college students.

Some college athletes have significant COVID-19-related financial concerns (Wanberg et al., 2020). With the risk of enduring medical expenses due to the contraction of COVID-19, some college athletes may not have the resources to pay for insurance deductibles and medical fees. Particularly, the financial strain may be even more concerning to Black, Indigenous, and people of color (BIPOC) college athletes, since these groups have been disproportionately

affected by COVID-19 (Harper, 2020; Poteat et al., 2020). This was demonstrated by the NCAA's (2020a) Student-Athlete COVID-19 Well-Being Survey, which found racial disparities in housing and food stability. Specifically, 25% of Black male college athletes disclosed that they did not have access to enough food, compared with 8% of White males. Of the overall sample, 7% of college athletes reported negative feelings about their current financial situation (NCAA, 2020a).

In addition to general COVID-19-related financial concerns faced by college students, many college athletes have uncertainty surrounding potential reductions of sport scholarship funding (Pilgram, 2020), institutional budget cuts to funding for their sport, and even the elimination of their team/program altogether (Giambalvo, 2020). Since March 2020, 352 NCAA sports teams across divisions have been cut (Kumar, 2020). At the recommendation of the NCAA (2020b), colleges and universities should honor current athletic scholarships; however, whether a scholarship is reduced is at the discretion of the institution, and with many colleges and universities making significant budget cuts to athletics, college athletes' scholarships are at risk (Pilgram, 2020). Further, athletes who hoped to have their athletic scholarships renewed in future academic years but whose sports were eliminated now will miss out on receiving athletic scholarships while they finish their academic program. This affects the 180,000 NCAA college athletes who are on athletic scholarships from their institutions (NCAA, n.d.).

It is critical to gather knowledge about response to the pandemic at the institutional level to ensure that effective measures are being taken to protect the safety of athletes. It also is important to understand pandemic-related attitudes and perceptions held by college athletes so that we can better understand how likely they are to change their health-related behaviors. While there have been several studies that have investigated the mental health and wellness of college athletes in the wake of the pandemic (Andreato et al., 2020; Graupensperger et al., 2020; Jagim et al., 2020; NCAA, 2020a), there have been few studies examining athlete perceptions about the pandemic and motivation of athletes to return to sport. Additionally, research reporting the satisfaction of college athletes with their athletic departments' response to the pandemic has not been published.

Specific Goals and Hypotheses

Goal 1: To explore general impacts of the pandemic (e.g., mental health, financial impact, changes in physical fitness) on collegiate athletes.

Hypothesis 1: Collegiate athletes will report significant impacts in a range of areas including mental health, academic progress, and financial stability.

Goal 2: To investigate collegiate athlete perceptions of COVID-19 regarding the risk of contraction and spread, areas of highest concern, and procedures needed to ensure athlete safety and comfort when returning to sport.

Hypothesis 2: The majority of collegiate athletes will express concern regarding contraction and spread of COVID-19 through participation in sports, given that participation requires close proximity or contact with others.

Goal 3: To assess the level of satisfaction with the athletic department's response to the pandemic and level of satisfaction with the department's adherence to guidelines and recommendations by the ACHA and NCAA.

Hypothesis 3: Most collegiate athletes will be satisfied with their athletic department's response to the pandemic.

Goal 4: To evaluate motivation to return to sport and the factors that influence college athletes' comfort returning to sport.

Hypothesis 4: Collegiate athletes will be motivated and eager to return to sport despite COVID-19 related risks.

Method

Participants and procedures

Participants included 245 varsity college athletes involved in various sports across NCAA Divisions I (n = 51, 21%), II (n = 189, 77%), and III (n = 5, 2%). Both domestic and international college athletes were invited to participate. International students included those from countries outside the United States currently studying and participating in a varsity sport at an American institution. Table 1 shows the demographic information of the sample.

Table 1

Demographic Characteristics of the Sample

Characteristics	*n*	%
Race		
Caucasian	184	75
Black/African American	39	16
Bi-racial	17	7
Asian	2	0.8
American Indian or Alaska Native	1	0.4
Native Hawaiian or Pacific Islander	1	0.4
Did not disclose	1	0.4
Ethnicity		
Hispanic or Latinx	21	8.5
Gender		
Female (including transgender women)	171	70
Male (including transgender men)	72	29
Non-binary	1	0.4
Did not disclose	1	0.4
Year		
Freshman	81	33
Sophomore	49	20
Junior	59	24
Senior	46	19
Graduate	10	4
College Geographic Region	n	%
South	135	55
Midwest	83	34
Northeastern	17	7
West	10	4
Student Status		
Domestic	218	89
International	27	11
Sport		
Soccer	28	11
Swimming	27	11
Volleyball	27	11
Softball	25	10
Basketball	22	9
Track and Field	19	8
Football	16	6
Rowing	16	6
Baseball	11	5
Cross-Country	11	5
Lacrosse	10	4
Cheerleading	7	3
Golf	6	2
Field Hockey	6	2
Wrestling	5	2
Tennis	4	2
Gymnastics	3	1
Dance	2	1

Note. $n = 245$. Percentages may not add up to 100 exactly due to rounding of calculations.

First, the study methods, procedures, informed consent, and survey materials received IRB approval from the Florida Institute of Technology's Institutional Review Board (IRB). Participants then were recruited via IRB-approved email correspondence with athletic department staff (e.g., athletic directors, coaches) of NCAA institution members across the United States. A relatively equal sampling of divisions (I, II, and III) and geographic regions were contacted. The recruitment email included the survey questionnaire and a brief description of the study, along with a request that the study description and survey be distributed via email to the college's NCAA-participating athletes. The authors contacted 168 institutions and yielded a 5% response rate. Eight athletic departments agreed to have their athletes participate and had an athletic staff member forward the survey and study description to athletes. To prevent the risk of athletes feeling influenced to respond in a certain way, they were ensured in the survey's informed consent section and the forwarded email that their responses would not be shared with their institution and that the survey did not collect any personal, identifying information.

Surveys were completed using Qualtrics, an online survey software. College athletes were directed to complete the survey voluntarily on their own time. As per NCAA guidelines that prohibit college athletes from accepting monetary incentives, compensation for participation was not offered. Informed consent was required prior to proceeding to the survey items. The survey included 25 questions with a combination of multiple response questions and Likert scale responses. It was approximated that the survey would take 15 minutes to complete. All survey questions and scales were generated by the authors and used the study goals and research questions as a framework. It was conceptualized with the NCAA Student-Athlete Well-Being Study (2020) as a guide for question structure. The goals of the present study were to contribute additional data to some of the questions posed on the NCAA's survey and to fill some of the research gaps (e.g., perceived risk and readiness to return to sport). Several revisions were made before distribution based on feedback provided by Florida Institute of Technology faculty and current graduate students on the research team. Due to the rapidly changing nature of our understanding of COVID-19 and to ensure timely data collection, the survey was not pilot tested. Likert scaled questions were rated by athletes as "Strongly agree," "Agree," "Neither agree nor disagree," "Disagree," or "Strongly disagree." Examples include: "I worry that I will be exposed to COVID-19 while participating in my sport," "I am afraid I will spread COVID-19 if I get it and don't know I have it," "Participating in my sport would be worth the risk of getting COVID-19," and "My athletic department is taking COVID-19 seriously and cares about my health." Other questions were not rated on a Likert scale, but rather prompted specific responses. For instance, in response to "Compared to before COVID-19 my weight has," respondents were asked to select "Increased," "Stayed the same," or "Decreased." The survey was active online from the beginning of August until the end of October 2020. Of the 245 respondents, 222 fully completed the survey and the remaining 23 respondents completed at least half of the survey questions. The mean time spent completing the survey was 5.2 minutes. Data were analyzed using Qualtrics XM Survey Software and IBM SPSS Version 27.0.

Results

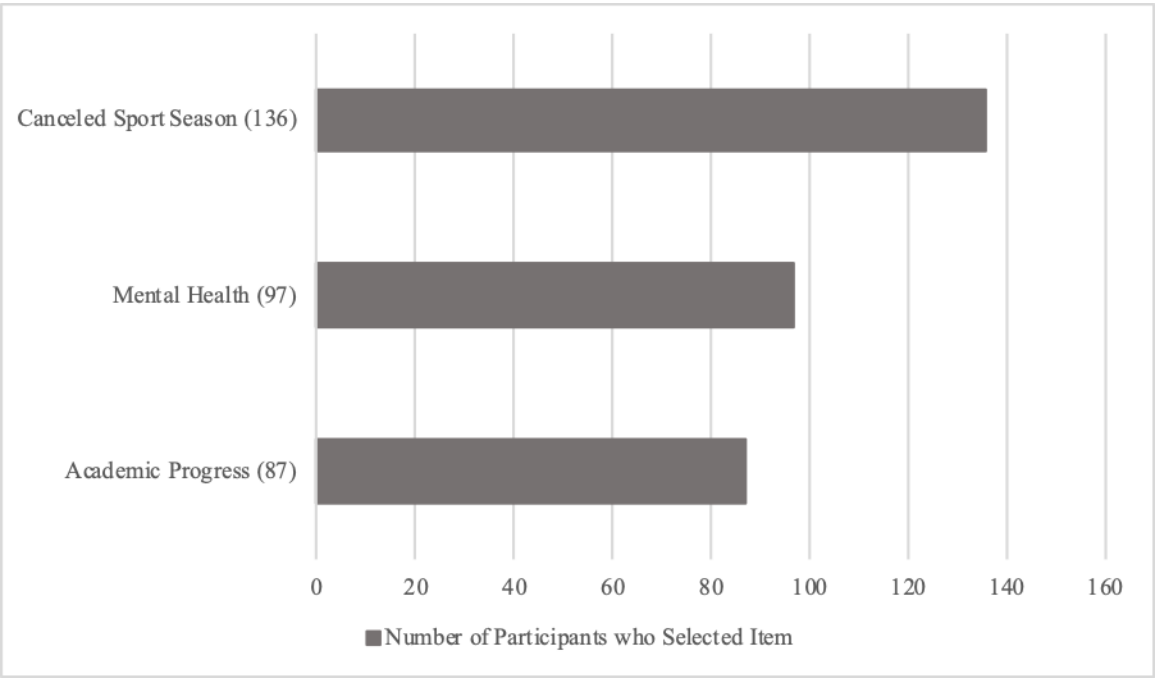
Goal 1

To explore the general impacts of the pandemic, athletes were asked to select their top three COVID-19-related concerns from a list of options provided based on findings from the NCAA (2020a) Student-Athlete COVID-19 Well-Being Study: (1) mental health, (2) academic progress, (3) physical health, (4) financial stability, (5) a shortened sport season, and (6) a canceled sport season. Additionally, the authors included: (7) maintaining physical fitness, based on research indicating declines in training habits and reduced motivation to train (Andreato et

al., 2020; Jagim et al., 2020); as well as (8) cuts to funding for your sport, which was included based on funding reductions and elimination of some sports altogether at various NCAA institutions (Giambalvo, 2020). Figure 2 shows the top three COVID-19-related concerns selected by participants, which include both mental health and academic progress, partially supporting the first hypothesis.

Figure 2

Top Three COVID-19-Related Concerns



Maintaining physical fitness was the next most pressing concern endorsed, with half (n = 109) of the respondents reporting declines in physical fitness since the pandemic began. Meanwhile, 31% (n = 68) of the respondents reported no changes in physical fitness and 19% (n = 42) reported improved physical fitness since the beginning of the pandemic. While 52% (n = 119) of participants did not experience weight changes, one in four experienced weight gain and approximately one in five experienced weight loss.

Somewhat contrary to this study's first hypothesis, financial stability was a relatively lesser concern. Of the 183 college athletes who received athletic scholarships, 132 reported that their funding was not impacted (72%); however, roughly 15% (n = 26) of the sample reported reduced funding because of COVID-19, and 25 students still were awaiting decisions regarding reductions or temporary suspensions of their scholarship funding. Meanwhile, nearly half of the participants endorsed a lack of confidence that they would be able to afford COVID-19-related medical expenses if they became ill.

Goal 2

In terms of collegiate athletes' perceptions of COVID-19 regarding the risk of contraction and spread, the majority of participants (88%) agreed they have a social responsibility to prevent the spread of COVID-19; however, just under half (44%) of respondents endorsed either "strongly agree" or "agree" when asked if they worry about being exposed to COVID-19 while participating in sport/practice, while 65% of participants endorsed fear of spreading COVID-19 to others if unknowingly carrying it (positive but asymptomatic). While this partially supports the second hypothesis, it is curious that less than half of the participants specifically expressed concern about being exposed to and contracting COVID-19. Additionally, slightly more than half of the respondents reported they had been tested for COVID-19 at least once since the beginning of the pandemic, with one in four receiving a positive result. Of the 100 participants who stated they left their college/university to live with family, friends, or a significant other due to the pandemic, slightly more than half traveled to another state. One in five participants reported that since the pandemic began, someone with whom they lived had tested positive for COVID-19. Just more than half of respondents said they would get vaccinated should the vaccine become available, while a quarter of participants responded they were undecided. Online news sources and social media were shown to be the most used mediums for gaining information about COVID-19.

Goal 3

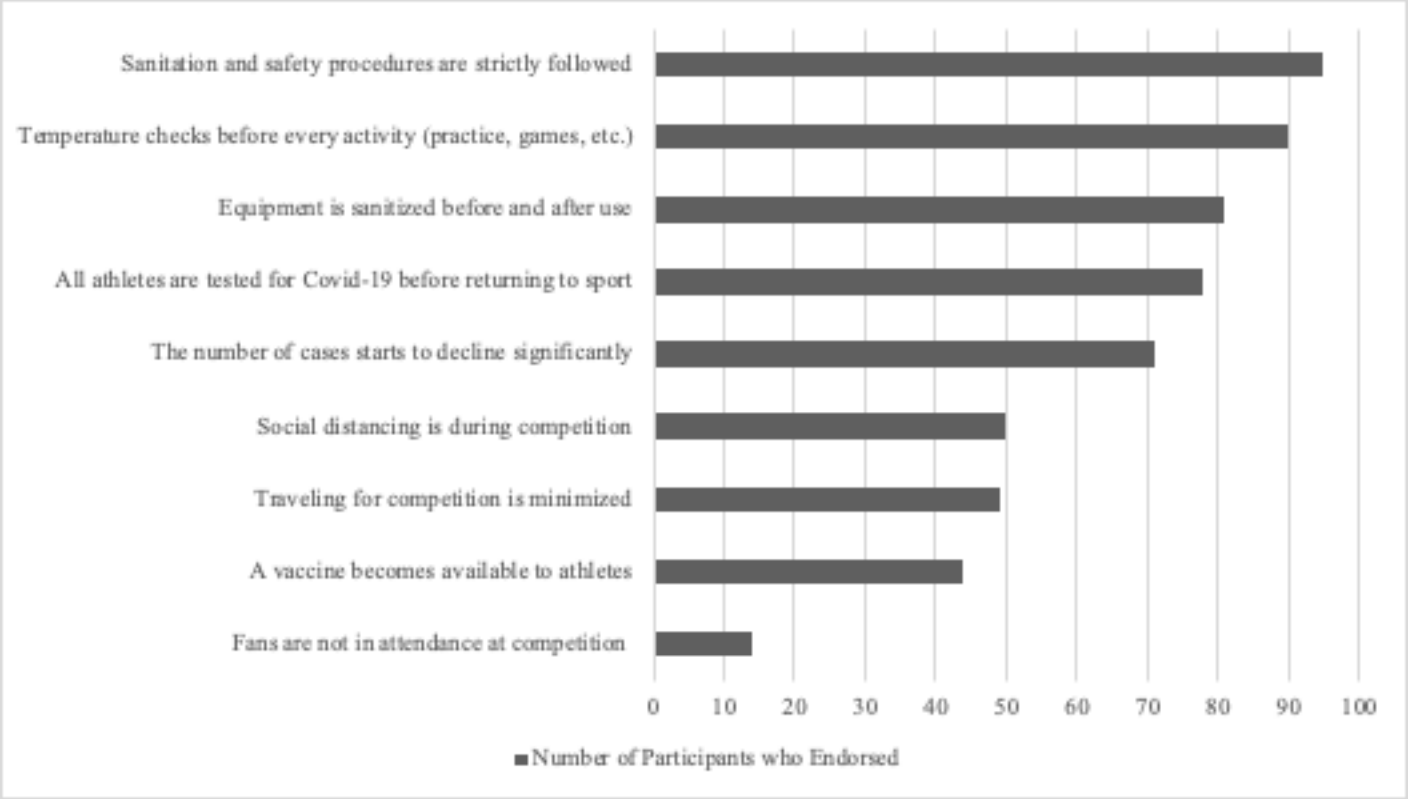
Collegiate athletes' satisfaction with their institution athletic department's response to the pandemic and adherence to safety guidelines also was assessed. Seventy-eight percent of athletes agreed their athletic department was taking COVID-19 seriously and showed concern for student health, and 89% of participants reported they had been made aware of new hygiene/safety action plans for returning to play and practice, supporting the third hypothesis. However, when asked how feasible those hygiene and safety procedures would be to enact and enforce, 26% of participants admitted that the procedures did not seem feasible for their sport. Fear about voicing their discomfort to teammates and athletic staff should the hygiene/safety procedures not be enforced and practiced was reported by 79% of athletes. The most selected reason for being fearful about voicing concerns was, "I would be embarrassed if the rest of the team feels comfortable and I don't." Second to the embarrassment was "fear of retaliation from coaching staff" (e.g., less playing time). The next most selected response was "fear of losing my position on the team." Meanwhile, 83% of respondents either strongly agreed or agreed that athletes should be included in COVID-19-related decision-making, although 75% endorsed satisfaction with the maintenance of communication from their department throughout the pandemic.

Goal 4

Motivation and readiness to return to sport also were assessed, and despite some of the previously mentioned concerns, 70% of participants endorsed feeling either "very comfortable" or "extremely comfortable" immediately returning to their sport, supporting the fourth hypothesis. The remaining participants endorsed "neutral," "uncomfortable," or "extremely uncomfortable." Interestingly, nearly half either strongly agreed or agreed that participating in their sport would be worth the risk of contracting COVID-19. Ranking highest among measures that significantly would increase college athletes' comfort returning to sport was strict adherence and enforcement of sanitation and safety procedures by athletics departments. Figure 3 shows the ranking of importance for each item.

Figure 3

Measures Endorsed by Athletes to Increase Comfort when Participating in Sport



To further understand the factors that influence college athletes' comfort in returning to sport, we analyzed bivariate correlations of variables that were rated on a 5-point Likert scale as: (1) Strongly Agree, (2) Agree, (3) Neutral, (4) Disagree, or (5) Strongly Disagree. Comfort returning to sport immediately also was rated on a 5-point Likert scale as: (1) Extremely Comfortable, (2) Comfortable, (3) Neutral, (4) Uncomfortable, or (5) Extremely Uncomfortable. Table 2 shows the means, standard deviations, and correlations between variables and their relationships with comfort returning to sport.

Table 2

Means, Standard Deviations, and Correlations between Variables and Comfort Returning to Sport

Variable	*M*	*SD*	1	2	3	4	5	6	7	8
1. Comfort Returning to Sport	2.04	1.17	-							
2. Satisfied with Department's Response	1.95	1.07	.28**	-						
3. Worry About Being Exposed During Sport	2.93	1.32	-.63**	-.11	-					
4. Worry About Spreading COVID-19	2.36	1.21	-.44**	-.16*	.58**	-				
5. Social Responsibility to Prevent Spread	1.65	.87	-.19**	.17*	.36**	.40**	-			
6. Department Taking COVID-19 Seriously	1.72	.861	.52**	.55**	-.33**	-.21**	.055	-		
7. Maintained Motivation to Train	2.24	1.19	.34**	.28**	-.21**	-.13	.017	.24**	-	
8. Participation is Worth the Risk	2.65	1.31	.56**	.114	-.59**	-.39**	-.28**	.28**	.32**	-

Note. *$p < .05$, **$p < .01$.

A strong negative correlation ($r = -.63$, $p < .001$) was found between comfort returning to sport and worry about exposure to COVID-19 during sport. Similarly, worry about spreading COVID-19 to others was negatively correlated ($r = -.44$, $p < .001$) with comfort returning to sport. Further, comfort returning to sport was moderately and positively correlated ($r = .56$, $p < .001$) with the belief that participating in sport would be worth the risk of contracting COVID-19. In contrast, worry about exposure to COVID-19 during sport was negatively correlated ($r = -.59$, $p < .001$) with the belief that participating in sport would be worth the risk. Additionally, a moderate and positive correlation ($r = .52$, $p < .001$) was found between comfort returning to sport and the sense that the athletic department was taking COVID-19 seriously. Notably, feeling that the athletic department was taking COVID-19 seriously also was moderately and positively correlated ($r = .55$, $p < .001$) with satisfaction with the department's response to the pandemic.

Discussion

When COVID-19 was declared a global pandemic, collegiate athletes experienced disruptions in sport and physical training. The purpose of this study was to investigate collegiate athletes' experiences during the pandemic toward developing a better understanding of their attitudes about COVID-19 and returning to sport. Relatedly, when asked to select their top three concerns from a list of options, most selected a canceled season. Despite potential risks involved, this widespread concern about being unable to participate in athletics due to canceled seasons may be influenced by fear surrounding the impact of other factors, such as mental health. Indeed, second to a canceled sport season, many respondents selected mental health as a primary concern. It is of note that mental health issues, including depression, anxiety, eating disorders, and substance abuse, are not uncommon in the collegiate athlete population (Mast & Gentile, 2019). Prevalence rates of mental health conditions in male and female collegiate athletes have been found to range from 5% to 35% (Reardon et al., 2019). Markedly, the incidence of suicide among college athletes has been found to be lower when compared with non-athlete college students; however, it has been posited that this lower incidence is related to the mental

health benefits of sport, including social connectivity with teammates, improved sense of accomplishment, and the antidepressant effects of physical activity (Mast & Gentile, 2019; Rao et al., 2015). In the event of canceled athletic activities resulting in the absence of these protective factors, collegiate athletes may be at higher risk for suicide or serious mental health disorders, suggesting that assessing mental health needs and provision of mental health services is of the utmost importance in this population.

Academic progress was the third most common concern, serving as a reminder that collegiate athletes are not just athletes, but students as well. Given that the pandemic potentially can have a negative impact on all collegiate students whether they are athletes or not, universities are faced with developing strategies to academically assist their students while adapting to virtual or online classrooms and possible delays in course completions. Meanwhile, physical concerns such as fitness and weight changes were somewhat less prominent than mental health and academic concerns, but still were reported by approximately half of the respondents. Fortunately, most collegiate athletes who participated in this study reported that their scholarship funding was not negatively impacted.

Current findings revealing that collegiate athletes perceive themselves to have a lower relative risk of contracting COVID-19 compared to others suggests the presence of optimism bias. Specifically, optimism bias is the false belief that our likelihood of experiencing negative events is lesser than predicted, or lesser than our peers' likelihood of experiencing negative events (Sharot, 2011). Psychologically, optimism bias can help reduce anxiety and stress about potential negative circumstances. On the other hand, when related to the pandemic, it increases threat not only to the person optimistically underestimating their danger but also to everyone around them. Since eliminating spread and reducing the risk of contraction requires behavioral change, optimism bias makes it less likely that someone will adhere to precautions and take appropriate safety measures. Considering optimism bias in this fashion, it is of note that the current study found that 44% of collegiate athletes were worried they would contract COVID-19 from others during sport participation, while 65% worried about others contracting COVID-19 from them, a discrepancy of 21%. This finding aligns with data released in 2020 by YouGov, an international research and analytics group, showing that people in the United States are approximately 15% more worried about COVID-19's possible health impact on others than on themselves.

Relatedly, the present study also revealed a significant, moderate-to-strong, negative relationship between comfort returning to sport immediately and worry about being exposed to COVID-19 during sport. In other words, athletes who perceived less risk of exposure were more comfortable returning to sport immediately. A similar but weaker significant negative relationship was found between comfort returning to sport immediately and worry about spreading COVID-19 to others. This suggests that athletes are slightly less willing to return to sport immediately when they worry about spreading COVID-19 to others as opposed to fearing their own risk of contraction. This finding further supports research demonstrating that people in the United States are more worried about COVID-19's possible health impact on others than on themselves.

The current study also found that almost all participants felt they had a social responsibility to prevent the spread of COVID-19. Additionally, those who felt a higher sense of social responsibility were less comfortable returning to sport. Just more than half of the participants, however, said they would get vaccinated if the vaccine became available to them. This suggests that many were not accepting vaccination as a method of prevention despite this sense of responsibility. As athletes return to participating in sports, teams will be made up of a combination of vaccinated and unvaccinated athletes. Potentially, the spread of COVID-19 will proliferate as a result.

Meanwhile, collegiate athletes' perceptions of their institution's response to the pandemic confirmed that most believed their athletic department was taking COVID-19 seriously. Further, results showed that students who believed their athletic department was taking COVID-19 seriously felt more comfortable returning to sport. Nearly a quarter, however, believed the proposed safety procedures lacked feasibility, which appears to be a major concern. Additionally, collegiate athletes expressed significant concern about the negative consequences of speaking up if safety procedures were not followed properly, suggesting a widespread perceived disincentive to do so. If collegiate athletes do not feel comfortable voicing their concerns, athletic departments may lack accountability regarding the implementation of safety procedures. An anonymous method of raising concerns may be considered by some programs, while external oversight to ensure compliance could be necessary for others.

Finally, and as expected, a majority of participants in this study reported they would return to sport immediately even with the ongoing COVID-19 presence and risk. This immediacy to resume participation regardless of hazard may indicate that collegiate athletes view themselves as less susceptible to contracting COVID-19 than others or that they minimize their own risk. As previously discussed, as college athletes' worry about exposure to COVID-19 during sport decreases, their comfort returning to sport increases. Bakshi et al. (2021) found a similar "casual" or low-risk attitude about COVID-19 among university students in general. This seemingly casual or low-risk attitude also may be influenced by the athlete's dedication to sport and "athletic identity," defined as the degree to which an individual identifies with and embraces the athlete role (Brewer et al., 1993). Abrupt cancelation of college sport activities may threaten an athlete's identity (Graupensperger et al., 2020). Without participation in sport, athletes may lose a sense of who they are. A sense of loss or identity confusion may explain why nearly half of the college athletes in this study agreed that participating in their sport would be worth the risk of contracting COVID-19.

On the other hand, athletes who were less comfortable or motivated to immediately return to sport may have an identity that is not so strongly dependent on their athletic involvement. Regardless of the strength of their athletic identity, some athletes may perceive the benefits of participating in sport as outweighing the risk of contracting COVID-19. This appears to be true based on the significant, negative correlation found in this study between worry about exposure during sport and participation being worth the risk. Moreover, athletes who believed participation in their sport was worth the risk also were more likely to report comfort returning to sport immediately.

Practical Implications

Overall, results suggest that mental health and academic concerns should be explored among collegiate athletes who experienced a canceled or truncated sports season. Institution athletic departments should actively assess and monitor the mental well-being of their athletes. This could be achieved through regularly scheduled one-on-one check-ins or the establishment of online support groups for athletes to meet regularly via Zoom or another teleconferencing platform. All college athletes should be given contact information for on-campus counseling and psychological services and/or affordable community resources to help cope with the general challenges of COVID-19 and the unique challenges of being a collegiate athlete during a global pandemic. Further, to address concerns about academic progress, academic support through student academic services should be encouraged and resources for academic assistance should be provided. For college athletes and college students in general, communication and flexibility by faculty are needed to navigate through this challenging and unprecedented time.

Because they perceive themselves to be at a relatively lower risk, collegiate athletes may be more

likely to engage in activities during which they could be exposed, suggesting that specific policies regarding engagement in certain high-risk activities may be needed as opposed to assuming that "good judgment" will be used. Given the concern about negative consequences of speaking up if safety procedures are not followed properly, programs may benefit from developing a method of receiving concerns anonymously, and possibly incorporating a compliance unit to provide oversight. The results of the current study highlight that for college athletes, the benefits of participating in their sport may outweigh their perceived risk of exposure. Awareness campaigns about the risks and dangers of COVID-19 may, therefore, not be enough to prevent college athletes from continuing to engage in sport. Acceptance of the resistance to discontinue athletic activities may move athletic departments in a more realistic direction. In that case, assuming college athletes are motivated to immediately return to sport, it is up to athletic departments and institutions to maintain and strictly enforce safety policies and procedures.

The top recommendation for increasing comfort returning to sport endorsed by participants in this study was that sanitation and safety procedures are strictly followed. This suggests that college athletes not only expect their institutions to have procedures in place, but they also expect adherence and accountability. College athletes appear then to be willing to follow policies if it means they get to participate in their sport. Further, college athletes in the present study gave insight into the types of procedures that would increase comfort, including regular temperature checks of players and sanitation of equipment. These recommendations are practical and can be implemented feasibly by athletic departments across all sports. In contrast, there may be some procedures that are not feasible dependent on sport, accounting for the one in four participants who stated the procedures proposed by their institution did not seem possible for their sport. For instance, athletes in contact sports are not reasonably able to physically distance themselves from other players. Thus, procedures should be made individually dependent on sport and should not be generalized to all sports. Moreover, since just more than half of the participants stated they would get vaccinated should a vaccine become available, education about messenger RNA vaccines in general and the COVID-19 vaccine specifically may be warranted.

Limitations

A limitation of the study was the small sample size, which limits generalizability to the general NCAA college athlete population of 460,000 athletes across all three divisions. The goal of the study was to survey a large sample with relatively equal numbers of participants across the three divisions. Since the study yielded a small sample, with most participants from Division II, the data presented in this study may be most representative of Division II athletes. Regardless, the sample is relatively small even when considering generalizing only to Division II athletes who make up 100,000 of the NCAA's college athletes. The results presented can be considered preliminary and serve as a basis for extended research, calling for increased representation of Divisions I and III in future studies. Although a very small percentage of participants came from Division III schools, it is of note that they do not receive scholarship funding and often lack resources, which may have influenced responses to some questions included in this survey. Another potential limitation is the 1:3 ratio of male (including transgender men) to female (including transgender women) participants, which may not be representative of collegiate athletes in general. Additionally, 75% of participants were Caucasian, which similarly may not be representative of the general collegiate varsity athlete population. Finally, knowledge about COVID-19 and related sequela has changed rapidly throughout the pandemic thus far, raising the possibility that the results of this study may be influenced by the timing of data collection. Data collection between August and October 2020 also may be limiting since the time frame was within the first semester of the academic year, although some sports are not yet in season early in the academic year.

Future Research

Future research should be conducted to investigate how the attitudes and perceptions of college athletes might change throughout the pandemic. The pandemic has persisted for more than one year and institutions gradually have been returning varsity athletes to sport activities in some states. Continued research into the short- and long-term effects on attitudes, perceptions, and protective behaviors should, therefore, be conducted. Additional research into BIPOC college athletes should be conducted to investigate the differences in experiences since BIPOC populations disproportionately have been affected by the pandemic. Continued research on the impact of COVID-19 on college athletes would be beneficial since knowledge about COVID-19, availability of the vaccine, and guidelines for best practices change continually. Moreover, as the pandemic has not yet been resolved, replicating similar surveys and conducting follow-up research to gauge outcomes over time would be highly beneficial since the magnitude of the pandemic's impact on college athletes may not yet be fully understood.

Conclusions

Collegiate athletes are worried about the pandemic's impact on their ability to participate in sports as well as their health and well-being, yet are eager to return to sport as soon as possible. Since participation in sport provides mental health benefits such as social connection, self-efficacy, and depression reduction, institutions should pay particular attention to this unique population that is lacking a significant protective element. For instance, collegiate athletes should be provided with on-campus and community resources for seeking mental health services. Institutions that have Counseling and Psychological Services (CAPS) may consider offering virtual support groups for college athletes to promote social connection and support during this difficult time. In addition, coaches and athletics staff can offer online events and opportunities for athletes to connect. Additionally, with appropriate safety procedures in place, a return to practices, conditioning, and drills may be a viable option while competitions remain on hold. At the same time, colleges and universities must consider what is best for their athletes given their particular situation and resources.

Collegiate athletes appear to be largely satisfied with the response to the pandemic by their institutions; however, there is doubt surrounding the viability of some of the proposed safety precautions. Athletic departments should consider how to implement safety protocols for each sport as opposed to creating general and broad guidelines assumed to apply to all sports. Additionally, since many collegiate athletes are not comfortable holding their athletic departments accountable, there may be a need for an anonymous outlet where students can raise concerns about adherence to COVID-19 safety procedures. This may be at the institution or conference level. For instance, the institution's Faculty Athletics Representative could act as an ombudsperson to field COVID-19-related concerns. Alternatively, each conference could appoint a contact person to deal with complaints made by athletes. Ultimately, collegiate athletes rely on their athletic departments to follow guidelines and safety procedures.

Finally, since the most common mediums among collegiate athletes for gaining information about the pandemic are social media and online news sources, the provision of unbiased and up-to-date information by the NCAA or by their conference or institution may be helpful. Additionally, collegiate athletes should be encouraged to refer to credible, unbiased sources, including the World Health Organization (WHO) and Centers for Disease Control and Prevention (CDC).

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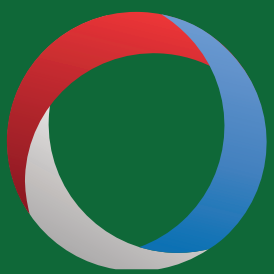

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