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COVID-19's Influence on Mental Health Among Collegiate Student-Athletes

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COVID-19's Influence on Mental Health Among Collegiate Student-Athletes

Cover Page Footnote

Originally developed as Mr. Balliu's master's thesis.

Mental Health Among Collegiate Student-Athletes

Introduction

On March 11, 2020, the World Health Organization (WHO) announced the coronavirus (COVID-19) surge as a global pandemic (Cucinotta & Vanelli, 2020). It was a day where fear flourished in the lives of billions. The virus spread at an alarming rate causing people to isolate and universities to close most campus activities. “Fear from the virus is spreading even faster than the virus itself” (Adhanom, 2020).

The coronavirus had become a serious threat to society, affecting the lives of so many around the world. One industry that took a major hit due to the global pandemic was athletics. Seasons were canceled and student-athletes are being forced to isolate from teammates and coaches. This study dove into the world of student-athletes and how COVID-19 had affected their mental well-being regarding anxiety and depression. “Not all sports, however, impact mental health in the same way” (Pluhar et al., 2019).

Problem Statement

COVID-19 rapidly became a major concern all over the world. Emergency orders were restricting people from going about their business. People were being forced to quarantine and social distance from loved ones. The thought of what was going to happen next is exhausting as life was unpredictable at this point in time. As the pandemic carried on, mental health needs became a point of emphasis. There was little known about COVID-19 as is, but the burden it caused in people’s livelihood was astounding. Few studies have been done in connection to mental health during the pandemic.

The purpose behind a student-athlete is to perform at an elite level on the field and in the classroom. Due to these unforeseen circumstances of the Pandemic, a student-athlete’s performance may be on a down spiral. The process of moving from a classroom environment to your room at home and learning on Zoom is not ideal. Being forced to not see teammates and coaches is not how they thought their last several months would go. “Although the ‘new normal’ is continually evolving, one aspect of human life is now highly salient: social isolation can detrimentally affect mental health and well-being” (Graupensperger et al., 2020). All these factors play a vital role in a student-athlete’s life and when you take those away it can be crucial. Therefore, the mental well-being of student-athletes should be not taken lightly, and protocols should be in place to ensure effective support for students.

Mental Health Among Collegiate Student-Athletes

Purpose of the Study

The purpose of this study was to determine how COVID-19 influenced the mental well-being of collegiate student-athletes. The COVID-19 pandemic has canceled, modified, or postponed multiple events in the lives of students. Without sports, student-athletes were put in a difficult situation mentally and physically. The study examined if there were correlations between stress levels, GPA, credit load, anxiety, and depression throughout the pandemic.

Research Questions

The primary research questions were:

- RQ 1: How COVID-19 had influenced the mental well-being among collegiate student athletes?
- RQ 2: Did the pandemic have a positive or negative impacts on student-athletes GPA, stress level, and credit load?

Significance of the Study

The results of this study may be significant to collegiate student-athletes and their support systems. The outcomes of this study may help create awareness for effective mental-health aid prior, during, and after a crisis situation. This study may encourage the implementation of new policies and procedures on mental health at the collegiate level with examples of how different techniques may be perceived in situations related to COVID-19 in the future.

Definition of Terms

Anxiety: A term that can be described as “distressing subjective experience, a symptom that can be reported to a health care professional, the hallmark of a group of diagnosable disorders (the *DSM-5* Anxiety Disorders), and most recently a “qualifier” that can be added to the diagnosis of Major Depressive Disorder (MDD) in *DSM-5*” (Roy-Byrne, 2015). An example of how you may react to stress.

COVID-19: “An infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)” (Adhanom, 2020). A virus that was a threat to physical and mental health.

Depression: “A widespread chronic medical illness that can affect thoughts, mood, and physical health. It was characterized by low mood, lack of energy, sadness, insomnia, and an inability to enjoy life” (Cui, 2015).

Mental health: The World Health Organization (WHO) describes mental health as “a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and was able to make a contribution to his or her community” (Galderisi et al., 2015).

Mental Health Among Collegiate Student-Athletes

Social distancing: The process of avoiding mass gatherings and maintaining a six foot distance from others when possible (Toresdahl & Asif, 2020). A term that can be linked to isolation.

Literature Review

This study examined how COVID-19 impacted the mental health of student-athletes.

Historical Overview of the Problem

Mental health is a major concern for society today. Millions of people are affected by mental illness each year. According to the National Alliance on Mental Illness, “20.6% of U.S. adults experienced mental illness in 2019 (51.5 million people). This represents 1 in 5 adults.” The National Alliance on Mental Illness states, “50% of all long-term mental illness begins by age 14, and 75% by age 24.” Not only is having a mental illness a concern itself in today’s age, but not many of those people effected are reaching out for help.

On March 11, 2020, the World Health Organization (WHO) announced the coronavirus (COVID-19) surge as a global pandemic (Cucinotta & Vanelli, 2020). “There are numerous mental health threats associated with the current pandemic and subsequent restrictions” (Fegert et al., 2020). “There are approximately 400 000 National Collegiate Athletic Association (NCAA) student athletes. According to the US Department of Health and Human Services, the depression prevalence rate for young adults, which ranges from 10% to 85% across studies, is higher than that of other age groups” (Wolanin et al., 2016). Mental health is an underlying issue that most, if not all student-athletes experience, whether it is truly deriving from the game or from life itself.

Mental Health

Student-athletes are a unique breed. The student-athlete’s life consists of perpetually competing at high levels on and off the field. The expectations are always set high. “The physical impacts of elite sport participation have been well documented; however, there is comparatively less research on the mental health and psychological wellbeing of elite athletes” (Rice et al., 2016). Holder, Forester, Williford, and Reilly (2019) spoke to the fact that if student-athletes felt less control over their situation, there was a higher stress level. Since responding to COVID-19 has taken control over many aspects of the collegiate experience, one would expect fewer students to perceive themselves in control of their situation. Student-athletes experience a massive number of stressors in their daily lives. Those consist of the public, social media, the team itself, and the potential risk of injury. According to a study by Lazarus (2000, as cited in Rice et al., 2016), “the

Mental Health Among Collegiate Student-Athletes

ways by which athletes appraise and cope with these stressors can be a powerful determinant of the impact the stressors have on both their mental health and their sporting success.”

Athletes do not often seek out help during these troubling times. The US Department of Health and Services (USDHS) reported in 2012 that 1 in 5 adults (20%) experience a mental health issue each year. USDHS also reported that the rate increased to 30% in the age group 18-25 years, yet less than one-third of those in this age group received treatment. This age range encompasses many athletes in high school, collegiate, and professional athletics (Bauman, 2016). Sports put a great deal of mental, physical, and emotional pressure on athletes. Not only are they trying to succeed for themselves, but athletes often are held to be responsible for their family, teammates, and community as well.

Anxiety and Depression

Sports are stressful. “During stressful situations, the body is threatened by external or internal forces that may lead to an alteration of its homeostasis. The adaptive changes, which occur in the body during stress, can either be behavioral or physical” (Weber et al., 2018). Stress can also have an effect physiologically which can activate symptoms of anxiety and depression. These may affect athletes at different times, whether it is right before a race or during a training session. According to a study by Doherty et al., (2016, as cited by Lebrun et al., 2018) “in this regard, it may be that the uniqueness of the performance environment in which elite athletes operate influences their experience, the symptoms expressed, and their reactions to depression.” Anxiety and depression are two severe mental health issues that should not be taken lightly, especially with athletes.

Depression and anxiety go hand in hand. In most cases, patients with depression often share similar traits of anxiety disorders, and those generally with anxiety disorders have depression (Tiller, 2013). Experiencing either of these disorders may cause one to have trouble doing day-to-day activities. Both disorders can cause someone to lose interest in a task and affect how one feels, thinks, and behaves. A list of common symptoms of depression from the researchers at Mayo Clinic (2018) are “feelings of sadness, tearfulness, emptiness or hopelessness, trouble thinking, concentrating, making decisions and remembering things, sleep disturbances, including insomnia or sleeping too much, and many more.” Some risk factors can range from certain personality traits to abuse of alcohol or drugs. Furthermore, a list of symptoms of anxiety from the professionals at Mayo Clinic (2017) may include “inability to relax, feeling restless, and feeling keyed up or on edge, difficulty handling uncertainty, overthinking plans, and solutions to all possible worst-case outcomes.” Risk factors of anxiety include personality, genetics, and experiences in life. For both mental illnesses, there is not any real known treatment or cure. If a student-athlete

Mental Health Among Collegiate Student-Athletes

were to have either of these conditions, it is a major concern. The staff supporting these student-athletes need to be on high alert and actively involved. Either of these disorders can cause someone to go down the wrong path quickly. It is important that student-athletes feel safe and comfortable with the people around them and more importantly with themselves.

Methodology

This study aimed to understand how the COVID-19 pandemic had impacted the mental health of collegiate student-athletes. The survey was broken down into three parts for the student-athletes to answer. The questions discussed topics about academics, anxiety, and depression throughout the COVID-19 pandemic. Questions dove into those topics and compared fall of 2019 (pre-COVID-19) and fall of 2020 (during-COVID-19). The purpose of this study was to learn how COVID-19 had influenced the mental well-being of collegiate student-athletes. Due to the COVID-19 pandemic a plethora of circumstances have changed for student-athletes, whether it was being sent home for the semester instead of staying in town or going from in person classes to completely remote. The changes took a toll on the students physically, mentally, and emotionally.

Research Design

The study was a cross-sectional research design. “Cross-sectional study design is a type of observational study design. In a cross-sectional study, the investigator measures the outcome and the exposures in the study participants at the same time” (Setia, 2016.) This cross-sectional research was based on a survey design. The survey collected qualitative and quantitative data. The university’s athletic department granted access for distribution of the survey to their student-athletes. The survey itself was distributed via e-mail to all participating student-athletes. There were 340 student-athletes at the Division II university in the study. There were three parts to the survey. The first part was a retroactive review of the student athletes’ stress levels and credit load prior to the COVID-19 pandemic. The second part of the survey asked for the same information during the Fall of 202 during the pandemic. The third section asked questions about anxiety and depression during the times of COVID-19. There were thirteen questions in all. (See Appendix A).

The purpose of this survey was to identify key factors the COVID-19 pandemic had on student-athletes’ academic, mental, and emotional states as measured by self-identified stress level, credit load, and grade point averages. The survey provided information on the impact the pandemic had on stress levels and credit load comparing pre-COVID-19 and during-COVID-19.

Mental Health Among Collegiate Student-Athletes

Sample and Setting

The setting for this study was a mid-sized NCAA Division II university in the Midwest. The town is home to roughly 30,000 people with a university enrollment around 9,000 students. Of those 9,000 students, about 340 were student-athletes. The university was a four-year, public university. The university contained undergraduate, graduate, and doctoral programs. The university included fourteen sports. The participants in this research design were mainly from the Midwest. However, there were some participants that were scattered from all over United States and even some from other countries around the world. Among the student-athletes, they ranged from freshman through graduate students, making their age range from 18-24 years old. The majority of the student-athletes were Caucasian. There were a few student-athletes that racially identified as Hispanic or African American as well as a sprinkling of two or more races. Participation in this study was limited to student-athletes who participated and were a part of a sports team in both the fall of 2019 and fall of 2020.

Research Questions

The research questions were:

- RQ 1: How COVID-19 has influenced the mental well-being among collegiate student-athletes?
- RQ 2: Did the pandemic have positive or negative impacts on student-athletes GPA, stress level, and credit load?

The research was collected from an online survey to the student-athlete population.

Description of the Sample

Participants included student-athletes who were associated with the Division II university. There were roughly 340 student-athletes who had the opportunity to participate in this research design. Of the 340 possible participants, 116 student athletes fully completed the survey. This netted a return rate of 34%.

Demographics

The data consisted of 116 participants grouped by their academic year instead of athletic year at the university. There were twenty-seven freshman, twenty-seven sophomores, thirty-five juniors, twenty-three seniors, and four graduate students. The participants came from all fourteen sports that were offered. The respondents were asked to compare their GPAs in the fall of 2019 with the fall of 2020. One-hundred and nine of the respondents had complete surveys. This research design took a closer look to see if this may have impacted the GPAs of student-athletes. According to the data, in 2019, 72 students (66%) had between a 3.50-4.0 GPA, 24 students (22%) had between a 3.0-3.49 GPA,

Mental Health Among Collegiate Student-Athletes

seven students (6.4%) had between a 2.5-2.99 GPA and six students (5.5%) had a GPA between 2.0-2.49. In 2020, seventy-five students (64.2%) had between a 3.50-4.0 GPA, twenty-nine students (26.6%) had between a 3.0-3.49 GPA, six students had a GPA between a 2.5-2.9 GPA (5%) and four students (3.6%) had between a 2.0 and 2.49 GPA. Two students had a GPA below 2.0 (1.8%) in 2020. By conducting a simple two tailed paired t-test on the GPAs, it was determined the GPAs were not significantly different before and during the Pandemic. The value of t was -0.39582 ; the value of p was 0.69302 . The result was not significant at $p < .05$. (See Table 1).

Table 1: GPA of Student Athletes pre-COVID and during COVID

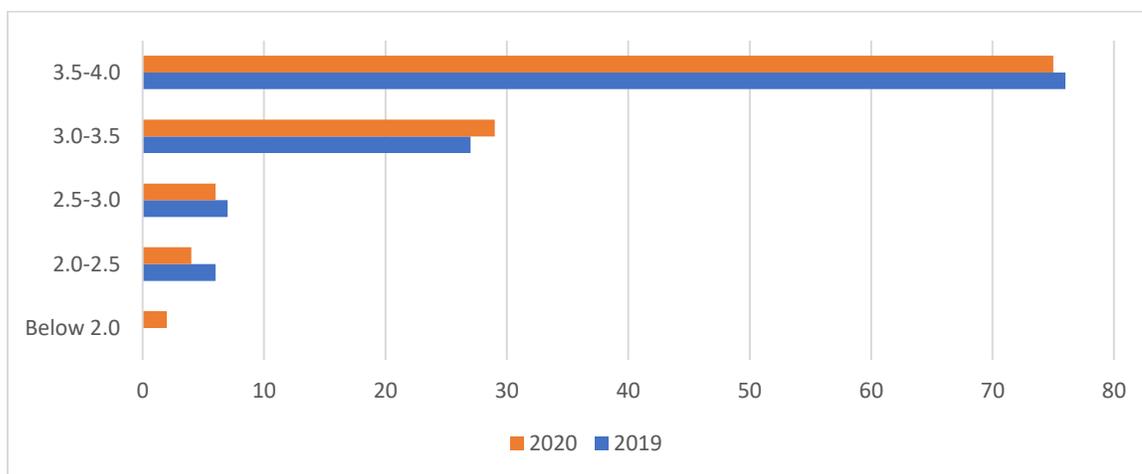
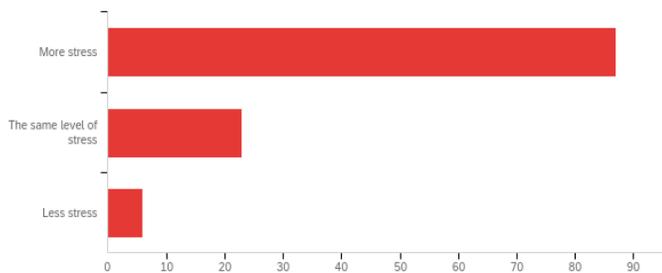


Table 1 compared GPAs of student-athletes in fall of 2019 (pre-COVID-19) compared with 2020 (during COVID-19). One difference was that in 2020, two students fell below a 2.0 GPA. Therefore, the data showed COVID had no significant impact on student-athlete GPAs.

The next group of questions identified stress levels regarding the student-athlete's daily lives with the global pandemic. In fall of 2020, eighty-seven student-athletes (75%) self-reported that they experienced more stress due to COVID-19 than the fall of 2019 (See Table 2).

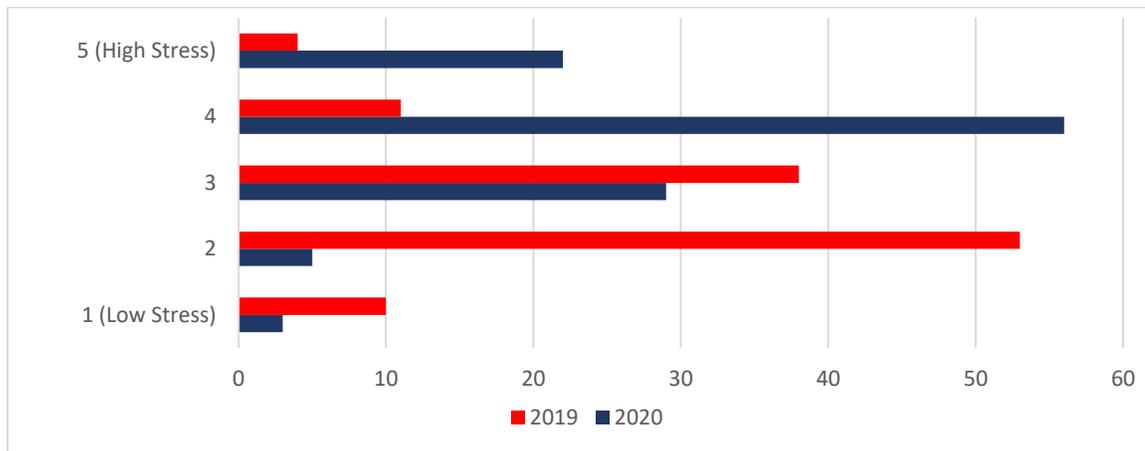
Table 2: Stress levels of Student Athletes during COVID

Mental Health Among Collegiate Student-Athletes



The next question was “Do you feel that you experienced more stress in the fall of 2020 due to COVID-19 compared to the fall of 2019?” Table 2 displayed the comparison student-athletes felt between stress levels in fall of 2020 and fall of 2019 due to COVID-19. In fall of 2019, student-athletes felt that they had low stress. On a scale 1-5, ten students (8.62%) put 1 (low or no stress), fifty-three students (45.6%) put 2, and thirty-eight students (32.76%) put 3. However, on the other end, in 2020, forty-nine students (25.22%) put a 3, fifty-six students (48.76%) put 4, and twenty-two students (19.13%) put a 5. Comparing the two-time spans, the stress levels were on opposite sides of the spectrum for student-athletes (See Table 3).

Table 3 Stress levels of Student Athletes before and during COVID



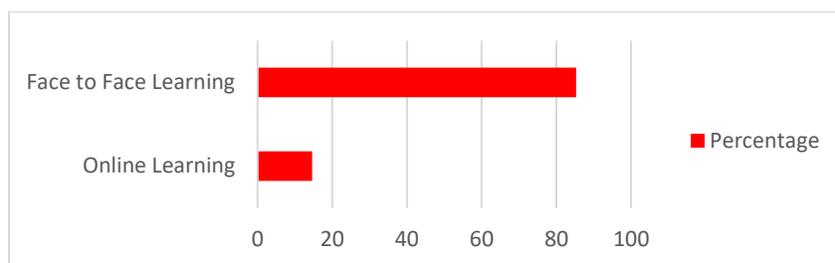
Students were then asked to identify their stress level on a five-point Likert scale. Table 3 presented the stress level student-athletes felt in fall of 2019 (pre-COVID-19) compared with fall of 2020 (during COVID-19). The average answer for 2019 was a 2.54 while in 2020 was 3.77. By conducting a simple two tailed paired t-test on the self-reported student athlete stress levels, it was determined the stress levels were significantly higher during the Pandemic. The

Mental Health Among Collegiate Student-Athletes

value of t was 11.053451; the value of p is $< .00001$. The result was significant at $p < .05$. COVID-19 did have a significant impact on the stress level of student athletes.

COVID-19, it did not have a major impact on credit loads for student-athletes as eighty-five (73.28%) took the same amount of credits as the previous semester. Ninety-nine students (85.34%) preferred in person learning over online learning (See Table 4). There was a negative correlation between those students who preferred online learning to face to face learning and their self-reported stress levels. The point biserial correlation was $r^{pb} = .09246$ with $p = .33898$ which was significant at $p < .05$. Students who preferred online learning reported less stress.

Table 4: Which learning Modality do Student-athletes Prefer



The student-athletes expressed comments on remote learning in the open-ended question of the survey: *Do you have any other information that I should consider regarding the COVID-19 pandemic, preferred learning environment, and/or student-athlete mental health?* The student-athletes communicated that online learning had been harder in general, especially with less resources available making it that much more difficult in their classes. It was noted that students were not happy with how their labs and clinicals were going due to the lack of in person experiences because of the COVID-19 protocols. They felt that professors were handing out more assignments to replace in class discussions because virtual courses were a learning experience for everyone. They felt an increase of stress due to not knowing what is going to happen next with their school situation. This added to student-athletes already experiencing discomfort about their sports season being cancelled and not having that stress reliever in their lives which took a toll on their mental health.

The student-athletes at the university experienced more stress but were still able to maintain their schoolwork with the wide range of how sections were offered during the Pandemic in the fall of 2020. In fall of 2019, there were a total of 2,048 sections offered and fall of 2020 had 1,886. There were multiple ways the sections were offered. In 2019, 73% of courses were offered in a traditional

Mental Health Among Collegiate Student-Athletes

face to face setting. Only 8% of courses were offered face to face in the fall of 2020.

The last section of the survey examined the anxiety and depression of student-athletes throughout the COVID-19 pandemic was measured by commonly used instruments available through the Center for Disease Control (CDC). The first section participants answered was in regard to anxiety (GAD-7). The second section was about depression (PHQ-9). For these questions, the data was scored according to the established GAD-7 and PHQ-9 scales (See Table 5). Table 5 displayed the results of the student-athlete's responses regarding anxiety (GAD-7). The findings of this quiz helped categorize each student-athlete as to the severity of their anxiety. The GAD-7 anxiety scores represent: 0-5 mild, 6-10 moderate, 11-15 moderately severe, and 16-21 severe levels of anxiety. The results were as follows: mild (60), moderate (32), moderately severe (15), and severe (9) cases.

Table 5: Results of the GAD-7 and PHQ-9 Questions

GAD-7 Categories	No of Responses	PHQ-9 Categories	No of Responses
Mild anxiety	60	None	67
Moderate anxiety	32	Mild	28
Moderately severe anxiety	15	Moderate	14
Severe anxiety	9	Moderately severe	4
		Severe	3

The findings of these questions helped categorize each student-athlete on their depression severity. The PHQ-9 depression scores represented: 0-4 none, 5-9 mild, 10-14 moderate, 15-19 moderately severe, and 20-27 severe levels of depression. The results were as follows: none (67), mild (28), moderate (14), moderately severe (4), and severe (3) cases of depression.

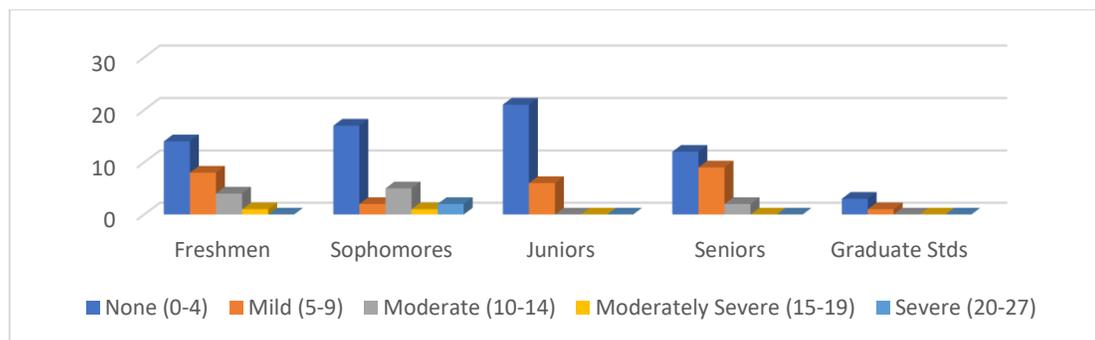
The table indicated scores for each participant. If the participant answered, "not at all", they would be given a zero for that question. If they answered "several days" they would receive one point for that response. This was repeated for each response. For example, the response of "more than half the days" they would get two points and for "nearly every day" they would receive three points. The

Mental Health Among Collegiate Student-Athletes

classifications for anxiety consisted of 0-5 mild, 6-10 moderate, 11-15 moderately severe, 16-21 severe while for depression was 0-4 none, 5-9 mild, 10-14 moderate, 15-19 moderately severe, and 20-27 severe. For anxiety, the results are as followed: mild (60), moderate (32), moderately severe anxiety (15), and severe (9) cases. The depression results consisted of none (67), mild (28), moderate (14), moderately severe (4), and severe (3) cases. Furthermore, the researcher broke down the cases by student-athletes by academic year for anxiety and depression (See Table 7).

Reviewing the anxiety levels relative to the student athlete's year in school found little relationship. Freshmen's anxiety levels were classified as mild (15), moderate (10), moderately severe (1), and severe (1). Sophomores' anxiety levels were classified as mild (14), moderate (4), moderately severe (5), and severe (4). Juniors' anxiety levels were classified as mild (19), moderate (8), moderately severe (6), and severe (2). Seniors' anxiety levels were classified as mild (10), moderate (9), moderately severe (2), and severe (2). Graduate students' anxiety levels were classified as mild (2), moderate (1), moderately severe (1), and severe (0). By conducting an ANOVA of the GAD-7 scores by academic year, there was no significant difference of anxiety level by academic year. The f -ratio value was 1.19352. The p -value was 0.35382. The result was not significant at $p < .05$. Therefore, student-athlete mental health was not significantly impacted by an increase in anxiety due to COVID.

Table 7: Depression among Student-athletes by Year in School



An analysis of the GAD-7 data from the study sample against the population norms provided by Jordan, Shedden-Mora, & Löwe (2017) shows that the sample mean was significantly different from the population mean with the value of $z=3.22421$, the value of p was 0.00128 and was significant at $p < 0.01$. The study reviewed if there was a relationship between the self-reported students' stress level and those students who were taking more credits during the pandemic. There was no significant correlation between the stress levels of those students

Mental Health Among Collegiate Student-Athletes

who took more courses during the Pandemic and those who took a similar or lesser credit load in the previous fall. The point biserial correlation was $r^{pb}=0.00808$, $p = 0.93353$. It was not significant at $p < .05$.

Regarding depression scores based upon the PHQ-7 (See Table 5), an ANOVA showed no significant difference between depression levels based upon academic year of the student athletes. The f -ratio value was 0.51871. The p -value was 0.722946. The result was not significant at $p < .05$. Freshmen depression levels were classified as none (14), mild (8), moderate (4), moderately severe (1), and severe (0). Sophomore depression levels were classified as none (17), mild (2), moderate (5), moderately severe (1), and severe (2). Junior depression levels were classified as none (21), mild (6), moderate (0), moderately severe (0), and severe (0). Senior depression levels were classified as none (12), mild (9), moderate (2), moderately severe (0), and severe (0). Graduate student depression levels were classified as none (3), mild (1), moderate (0), moderately severe (0), and severe (0). An analysis of the PHQ-9 data from the study sample against the population norms provided by Jordan, Shedden-Mora, & Löwe (2017) shows that the sample mean was not significantly different from the population mean with the value of $z=-0.09086$, the value of p was 0.92828 and was not significant at $p < 0.05$.

Discussions and Conclusions

Academics

According to the institution, in fall of 2019 there were a total of 2,048 sections of classes offered and fall of 2020 had 1,886. These sections were offered in online, face to face, hybrid, and other variations due to the COVID-19 pandemic. Although most students (85%) preferred in-person learning, there was no significant difference between pre-Pandemic and Pandemic GPAs for the student athletes. Although the GPAs for the Pandemic period were slightly lower, they were not significantly so. Students who preferred online courses did self-report less stress than their peers. This would support that in all situations educational institutions need to work to ensure that the course delivery methods are as responsive to students as possible. Student comfort with the delivery method does appear to have an impact on student stress levels.

The student-athletes expressed that online learning had been a difficult learning curve to handle because it was something that no one was used to, even the faculty. The student-athletes felt that there was a lack of resources available making it that much more difficult for professors to teach and students to learn. Student-athletes that had labs or clinicals complained that they were not doing much for them as they lacked complete or minimal in person experience due to the COVID-19 guidelines. Institutions need to better understand how to utilize

Mental Health Among Collegiate Student-Athletes

augmented and virtual reality options for lab and clinical work and then provide the necessary training for faculty to fully integrate such tools into their instruction. In the broader scheme of things, student-athletes felt that professors were handing out more assignments because virtual courses seemed to be easier. The student-athletes made it clear that they were accustomed to higher levels of stress due to not knowing what was going to happen next with their school situation. COVID did not seem to have a significant negative impact on GPA or course load among students. COVID did significantly increase student-athlete stress-levels.

Anxiety and Depression

According to the responses, the mental state of the student-athletes through the lens of anxiety and depression throughout the COVID-19 pandemic had a significant impact on anxiety levels but not depression levels. This was evaluated by commonly used instruments from the Center for Disease Control (CDC). Participants completed a GAD-7 anxiety and PHQ-9 depression questionnaires as part of the survey. Based upon the data, the researcher was able to compute and calibrate the responses by each student-athlete through the GAD-7 Anxiety Severity and PHQ-9 Depression Severity scales.

The results were steady across the board when looking at anxiety levels of the student-athletes year in terms of academics. There was no significant difference in anxiety or depression levels by academic year. The majority of responses consisted of mild or moderate ratings across all academic years. Student-athletes in the study did score higher levels of anxiety against Jordan, Shedden-Mora, & Löwe's (2017) reported pre-Pandemic samples. However, due to the nature of the Pandemic, it is difficult to use the pre-Pandemic sample as a definitive comparative. Mental health remains a high value topic in athletics today and something that needs to be continuously considered. Based upon the participants in this study, their anxiety levels as a whole were higher than established averages. However, few students reached the higher levels of the GAD-7 scale even with the COVID-19 pandemic playing a factor. Student depression levels as measured by PHQ-9 were lower remaining within the pre-Pandemic sample norms. Even with these results, the athletic department, training staff, and coaches should regularly check in with their student-athletes. The life of a student-athlete is a roller coaster with handling school, sports, and daily activities. Therefore, routinely checking in with student-athletes is a great way to be in engaged in their lives as well as making sure they are in a good mental state.

Recommendations for Future Research

Due to the Center for Disease Control and Prevention (CDC) guidelines for COVID-19, the research design was limited to an online survey to compile the

Mental Health Among Collegiate Student-Athletes

data. The use of in person interviews could be of value to future researchers. Also interviewing and survey coaches at multiple Division II institutions and see how their perceptions compare to those of the student athletes. Future surveys and interviews could be conducted in other geographic areas and compare the different levels of the National Collegiate Athletic Association (NCAA). For example, a sample of Division I, II, and III institutions. One disappointment with the study was the lack of open-ended feedback provided by the respondents. In person interviews would likely elicit additional open-ended feedback. Additional study to determine if athletes in certain sports are more susceptible to stress, anxiety, and depression might be valuable.

Lastly, the research design focused on mental health and the data that was collected looked in depth at anxiety and depression. Future studies could expand and look at other mental health issues that student-athletes may experience. Future studies could compare other mental health issues such as performance anxiety from fall and spring semesters. This could be intriguing as the data could differ because student-athletes will be in-season for one semester and out-of-season in the other. The life of a student-athletes differs from in-season and out-of-season. A student-athlete may be experiencing less practices, variable credit loads, and balancing a work schedule. All of these play a major factor in the daily lives of student-athletes. Therefore, it would be intriguing to see future research on the impact of in-season and out-of-season lifestyles on mental health.

Recommendations for Practitioners

Recommendations for practitioners at this institution may include clinical and sports psychologists and mental health counselors. These professionals should be frequently involved in the lives of their student-athletics. Whether they set up frequent lectures, in person or online resources, or meetings with the student-athletes. It does not have to be with everyone but at least with the leaders of each sports team. Therefore, the leaders can pass down messages or themselves make regular contact with their team. Meetings with the student-athletes would be valuable to develop relationships.

Mental Health Among Collegiate Student-Athletes

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Mental Health Among Collegiate Student-Athletes

Appendix A: Student-Athlete Mental Health Survey

Hello, I am conducting a survey to determine what impact COVID-19 pandemic has on student-athletes mental health as part of my master's degree in Sports Management.

Your participation will involve completing a brief survey; it should take less than 5 minutes to complete. The format for the questions asked will be yes or no, scale 1-10, or multiple choice. The survey is broken down into three parts. The first part is in regard to stress levels and credit load throughout COVID-19 pandemic. The second and third part ask questions about anxiety and depression during COVID-19. All three parts will be distributed at one time. We hope to learn how COVID-19 has influenced the mental well-being of collegiate student-athletes. Your participation in this study is strictly voluntary. If you decide not to participate or wish to stop the survey before it is complete, you can do so without consequences. The results of the survey may be published or otherwise disseminated but your identity will remain anonymous and no identifying information will be made known to any outside party. The aggregate data downloaded will be maintained on a WSU password protected device with access limited to the principal investigator and sponsor. The data will be deleted after the completion of the research process. Potential risks are the acknowledgments of mental health. The survey will ask questions in regard to anxiety, depression, and emotional state. The information collected will be disclosed to only the researcher. No identifiable information will be collected or shared in the results. Attached is a link to SAMHSA's National Mental Health Helpline and the WSU Student Health Services contact information. -

<https://www.samhsa.gov/find-help/national-helpline->
<https://www.winona.edu/healthservices/>

If you have any questions regarding the study, please feel free to contact me at jballiu15@winona.edu. You can also contact my faculty advisor at steven.baule@winona.edu If you have any questions regarding your participation in the study, or if you want to verify the authenticity of the study, please contact the Winona State Institutional Review Board at IRB@winona.edu

Mental Health Among Collegiate Student-Athletes

Q1 Do you wish to continue and are over 18?

- Yes (1)
- No (2)

Q2 What year are you academically?

- Freshman (1)
- Sophomore (2)
- Junior (3)
- Senior (6)
- Graduate Student (5)

Q3 What sport do you play?

- Men's Basketball (1)
- Baseball (2)
- Men's Cross Country (3)
- Football (4)
- Men's Golf (5)
- Women's Basketball (6)
- Women's Cross Country (7)
- Women's Golf (8)
- Gymnastics (9)
- Soccer (10)
- Softball (11)
- Tennis (12)
- Track & Field (13)
- Volleyball (14)

Q4 What was your GPA in fall of 2019?

- Below 2.0 (1)
- 2.0-2.5 (2)
- 2.5-3.0 (3)
- 3.0-3.5 (4)
- 3.5-4.0 (5)

Q5 What was your GPA in fall of 2020?

- Below 2.0 (1)
- 2.0-2.5 (2)

Mental Health Among Collegiate Student-Athletes

- 2.5-3.0 (3)
- 3.0-3.5 (4)
- 3.5-4.0 (5)

Q6 Do you feel that you experienced more stress in fall of 2020 due to COVID-19 compared to fall of 2019?

- More stress (1)
- The same level of stress (2)
- Less stress (3)

Q7 If you had to rate your stress level in fall of 2019 (pre-COVID-19), what would it be?

- 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- 7 (7)
- 8 (8)
- 9 (9)
- 10 (10)

Q8 If you had to rate your stress level in fall of 2020 (during-COVID-19), what would it be?

- 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- 7 (7)
- 8 (8)
- 9 (9)
- 10 (10)

Mental Health Among Collegiate Student-Athletes

Q9 Did you take more or fewer credits "than usual" in fall of 2020 semester due to COVID-19 circumstances?

- More credits (1)
- The same number of credits (2)
- Fewer credits (3)

Q10 Which learning setting do you prefer?

- In-person (1)
- Online (2)

Q11 Over the last two weeks, how often have you been bothered by the following problems?

	Not at all (1)	Several days (2)	More than half the days (3)	Nearly every day (4)
Feeling nervous, anxious, or on edge (1)	0	0	0	0
Not being able to stop or control worrying (2)	0	0	0	0
Worrying too much about different things (3)	0	0	0	0
Trouble relaxing (4)	0	0	0	0
Being so restless that it is hard to sit still (5)	0	0	0	0
Becoming easily	0	0	0	0

Mental Health Among Collegiate Student-Athletes

annoyed or irritable (6) Feeling afraid, as if something awful might happen (7)				
	0	0	0	0

Q12 Over the last two weeks, how often have you been bothered by the following problems?

	Not at all (1)	Several days (2)	More than half the days (3)	Nearly every day (4)
Little interest or pleasure in doing things (1)	0	0	0	0
Feeling down, depressed, or hopeless (2)	0	0	0	0
Trouble falling/staying asleep, sleeping too much (3)	0	0	0	0
Feeling tired or having little energy (4)	0	0	0	0
Poor appetite or overeating (5)	0	0	0	0
Feeling bad about yourself or that you are a failure or have let yourself or family down (6)	0	0	0	0

Mental Health Among Collegiate Student-Athletes

Trouble concentrating on things, such as reading the newspaper or watching television (7)	0	0	0	0
Moving or speaking so slowly that other people could have noticed? Or the opposite; being so fidgety or restless that you have been moving around a lot more than usual (8)	0	0	0	0
Thoughts that you would be better off dead or hurting yourself in some way (9)	0	0	0	0

Q13 Do you have any other information that I should consider regarding the COVID-19 pandemic, preferred learning environment, and/or student-athlete mental health?
