An Evaluation of Marginalized Student-Athlete Mental Health, Access To and Utilization of Support Services

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AN EVALUATION OF MARGINALIZED STUDENT-ATHLETE MENTAL HEALTH, ACCESS TO AND UTILIZATION OF SUPPORT SERVICES

by

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Dedication

For Bura Mae, George, and Josie, my grandparents, who were born in a time where school for Black people was not as much of a priority, but to them getting my high school diploma was not an option and getting my doctorate is changing our family trajectory. For Anthony and Karen, my parents, who demonstrated greatness academically, personally, professionally. For student-athletes, you are worth it—it may not always be easy, be sure to prioritize yourself holistically—your mental is just as important as the physical. For the advocates, continue to fight, Student-Athletes need you to fight for them when they cannot fight for themselves. It’s all connected.
Acknowledgements

When I graduated high school in 2004, I told my high school counselor that I would one day get a “pillow hat”. In 2014, I wrote on my mortarboard PhD coming soon—and now in 2024 I have achieved this goal. My life is the manifestation of my words, but I would not have made it to this point without the love, support, and encouragement from the people in my life. First and foremost, I would like to give an honor to God—there were times where I didn’t think that I would make it and everything I needed was supplied.

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Abstract

NCAA student-athletes (SAs) face unique challenges as they simultaneously navigate sports, adulthood, and academic demands. Research indicates that SAs experience mental health issues at rates similar to or higher than their non-athlete peers, yet they are often less likely to seek help as they experience possible contributing factors including lack of knowledge on how and where to seek services, and stigma, which can both discourage service utilization.

This study examined the mental health concerns of 145 NCAA SAs, focusing on the impact of biopsychosocial (BPS) factors influenced by division, injury, and marginalization status. Using Engel’s BPS framework, which considers biological, psychological, and social dimensions, the study aimed to provide a comprehensive understanding of SA mental health. The research explored differences in mental health concerns across NCAA divisions, injury status, and marginalization status (e.g., race, gender, sexuality) and their influence on access to and use of mental health services.

Findings indicated that SAs across all divisions face similar mental health challenges; however, disparities were noted, particularly among marginalized groups, including women and LGBTQ+ SAs. These groups reported greater mental health challenges and varying levels of support from coaches, teams, and institutions, often compounded by stigma and perceived inadequate support.

The study advocates for policy change across all NCAA divisions to further prioritize mental health, promote holistic well-being, and enhance SA performance. It calls for a cultural shift within athletic departments and institutions to destigmatize mental health issues and provide inclusive, tailored mental health support systems that meet the diverse needs of all SAs. This research emphasizes the need for equitable mental health support to address the interconnected
factors contributing to SA mental health, aiming to raise awareness and drive improvements in mental health resources for student-athletes.
# Table of Contents

List of Tables  
List of Abbreviations  
Chapter One: Introduction  
  Background of Study  
  Statement of the Problem  
  Scope and Significance of Study  
  Purpose and Research Questions  
  Definition of Terms  
Chapter Two: Literature Review  
  National College Athletic Association  
  Biopsychosocial Framework  
  SA Access to and Utilization of Services  
  Current Study  
Chapter Three: Methodology  
  Introduction  
  Research Design  
  Population and Sampling Procedures  
  Measures and Instrumentation  
  Statistical Analysis  
Chapter Four: Results  
  Procedure and Participants  
  Quality of Life  
  PHQ-ADS  
  Mental Healthcare Perceptions  
  Mental Health Stigma  
  Correlations  
  MANOVAs  
Chapter Five: Discussion  
  Interpretations
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limitations</td>
<td>86</td>
</tr>
<tr>
<td>Implications</td>
<td>86</td>
</tr>
<tr>
<td>Recommendations for Future Research</td>
<td>89</td>
</tr>
<tr>
<td>Conclusion</td>
<td>92</td>
</tr>
<tr>
<td>References</td>
<td>93</td>
</tr>
<tr>
<td>Appendix</td>
<td>103</td>
</tr>
<tr>
<td>IRB Approval</td>
<td>116</td>
</tr>
</tbody>
</table>
List of Tables

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1</td>
<td>Demographic Data for Full Sample</td>
<td>56</td>
</tr>
<tr>
<td>Table 2</td>
<td>Descriptive Statistics for Full Sample</td>
<td>58</td>
</tr>
<tr>
<td>Table 3</td>
<td>Spearman’s Correlation Coefficients</td>
<td>60</td>
</tr>
<tr>
<td>Table 4</td>
<td>Box’s Test of Equality of Covariance Matrices</td>
<td>61</td>
</tr>
<tr>
<td>Table 5</td>
<td>Multivariate Tests-Pillai Trace Division*Injury Status</td>
<td>62</td>
</tr>
<tr>
<td>Table 6</td>
<td>Multivariate Tests-Pillai Trace Race*Gender</td>
<td>63</td>
</tr>
<tr>
<td>Table 7</td>
<td>Test of Between-Subjects Effects-Gender</td>
<td>64</td>
</tr>
<tr>
<td>Table 8</td>
<td>Multivariate Tests-Pillai Trace Sexuality</td>
<td>65</td>
</tr>
<tr>
<td>Table 9</td>
<td>Test of Between-Subjects Effects-Sexuality</td>
<td>65</td>
</tr>
</tbody>
</table>
### List of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIPOC</td>
<td>Black, Indigenous, and other People of Color</td>
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<td>BPS</td>
<td>Biopsychosocial</td>
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<tr>
<td>CARA</td>
<td>Countable athletically related activities</td>
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<td>D-I</td>
<td>Division I</td>
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<td>D-II</td>
<td>Division II</td>
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<tr>
<td>D-III</td>
<td>Division III</td>
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<td>MHBP</td>
<td>Mental Health Best Practices</td>
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<td>NCAA</td>
<td>National College Athletic Association</td>
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<tr>
<td>SA</td>
<td>Student-Athlete</td>
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<tr>
<td>PPS</td>
<td>Perceived public stigma</td>
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<tr>
<td>PS</td>
<td>Personal stigma</td>
</tr>
<tr>
<td>SS</td>
<td>Self-stigma</td>
</tr>
</tbody>
</table>
Chapter One: Introduction

Background of Study

The purpose of this study was to investigate student-athlete (SA) mental health concerns, access to and utilization of services to identify if any differences were present in SA well-being across NCAA divisions, injury, and marginalization status. Student-athletes live a dual life that expects them to balance both academic and athletic demands while navigating transition into adulthood. Considering “sports are a microcosm of society” (Weir, 2018, p. 50), SAs experience mental health concerns at similar rates to their non-athlete peers, if not higher (Gross et al., 2020) and demonstrate a need for support to address these concerns. An advocate for mental health support for all SAs, the National College Association (NCAA) was founded in 1906 to protect SAs and though mental health was not an original focus the NCAA Constitution (NCAA, 2021h) now explicitly states its commitment to SA well-being and development. The three-division structure of the NCAA aimed to provide similar schools a fair playing field and in such the resources of each division often differs resulting in varying levels of support available to SAs.

Though the resources available to SAs differ, they navigate similar biological, psychological, and social factors that may impact their academic, athletic, and life performance. Engel’s (1977) biopsychosocial (BPS) framework provides a holistic view in understanding SAs and some of their experiences. The BPS model was created to counter biomedical models that failed to address social, psychological, and behavioral components of illness (Engel, 1977). Mentioned in the NCAA Mind, Body, and Sport (Brown, 2014) publication, BPS factors were discussed as a root cause of depression while also emphasizing that most mental health disorders are the result of the interrelatedness of the three factors (Bader, 2014). Despite suggestions to consider BPS factors, research often focuses on singular aspects of SA health and wellness not
addressing the interplay of all health domains: biological, psychological, and sociocultural (Engel, 1977; Brown et al., 2022).

Highlighting the interconnectedness of the three factors, McDaniel et al. (2014) noted that physical, biological, or somatic ailments do not occur without psychosocial consequences and vice versa. The dual role of SAs often result in biological stressors such as exhaustion, sleep disturbance, and injury. Though all SAs may struggle with biological stressors, BIPOC and LGBTQ+ individuals report feeling more mentally exhausted and higher rates of sleep difficulty than White and heterosexual SAs, respectively (NCAA, 2022). Exhaustion and sleep difficulty may place SAs at risk not only for mental health concerns and athletic and academic underperformance (Benjamin et al., 2020), but also for injury as both sleep difficulty and exhaustion have a detrimental effect on attention, mood, and reaction time (Lieberman et al., 2005).

An estimated 50% of SAs have experienced injury during their collegiate career (Hootman et al., 2007). Student-athletes are expected to have a normal reaction to injury (Putukian, 2016) including responses such as brief sadness, irritation, anger, sleep disturbance; however, problematic responses may persist, worsen, or become excessive especially considering injury may result in time away from sport which may increase the likelihood of problematic emotional reactions and psychological stressors such as depression, anxiety, and suicidality.

The American Psychiatric Association (2023b) defines depression as a serious, but common medical illness that negatively impacts how one feels, thinks, and acts. Symptoms of depression include loss of energy, difficulty concentrating, and more which can negatively impact SA performance both academically and athletically. The literature varies in SA rates of
depression; however, the NCAA Student-Athlete Well-Being Study (2022) reported that approximately one in four SAs felt so depressed within the last month that it was difficult to function. COVID-19, not surprisingly, resulted in SAs experiencing mental health concerns at some of the highest rates in spring of 2020 with 39% of women’s and 28% of men’s sports participants responding yes to feeling so depressed it was difficult to function. Most notably, marginalized SAs (e.g., women, BIPOC, and LGBTQ+) experienced mental health concerns at the highest rates (NCAA, 2022). Depression not only impacts SA ability to perform, but also often co-occurs with anxiety.

Anxiety is characterized by worried thoughts and tension associated with the fear of the future (APA, 2023a) and as many as one-third of SAs have experienced moderate to severe anxiety endorsing symptoms of being overwhelmed and excessive worry (Li et al., 2017). Seventy-two percent of women’s and 45% of men’s participants responded yes to feeling overwhelming anxiety in the past month. Though BIPOC SAs did not report feeling overwhelming anxiety more than their White peers, Queer-Spectrum SAs reported higher rates of overwhelming anxiety than their heterosexual peers (NCAA, 2022). Student-athlete anxiety and depression may be problematic emotional responses to injury (Putukian, 2016), but may also put SAs at increased risk for injury (Li et al., 2017) and thoughts of suicide (Rao et al., 2015).

Student-athlete mental health concerns when left untreated may result in suicidal ideation, suicide attempts, and death by suicide (Rao et al., 2015). The spring of 2022 highlighted the need to focus on SA mental health with five SAs known to have died by suicide (Parrott, 2023). Though more White SAs have died by suicide, one study highlights the notion that Black and other racially marginalized SAs may be at an equal or greater risk than their White SA counterparts (Rao et al., 2015). A current gap in the research specific to LGBT+ SAs
and suicidality is present; however, LGBTQ+ youth are at an elevated risk for suicide attempts and death by suicide (Marshal et al., 2011). Student-athlete incidence of suicide and relative risk is lower than peers their age, but there is still a risk despite protective factors. Vulnerable to high expectations from self and others, the team environment and other social stressors may impact SA mental health.

Social stressors such as team environment, athlete identity and COVID-19 play a role in protecting or exacerbating SA well-being. The culture and climate created by the coach such as team cohesion and inclusion can impact performance and foster or diminish SA mental health and SAs who participate on individual sports may be at a greater risk for mental health concerns (Saxe et al., 2022). Student-athlete identity is the degree to which one identifies with the athletic role (Brewer et al., 1993) and SAs with higher levels of athlete identity are at a greater risk of depression (Huml, 2018). COVID-19 put the identity and mental health of SAs at risk when all athletic events came to an abrupt stop and Latinx and Black SAs reported that COVID-19 health concerns negatively impacted their mental health more than their White peers.

Identifying biopsychosocial stressors does not address SA access and utilization. Student-athletes have varying levels of access to mental health supports and though most SAs may be knowledgeable of where to go for mental health support many do not feel comfortable seeking support. In fact, no more than 49% of the population subsets (e.g., race, gender, division) felt comfortable with the exception of Latinx men (52%; NCAA, 2022). There are many barriers that may play a role in SAs not utilizing services including time constraints, inability to identify mental health symptoms and stigma (López & Levy, 2013; Beauchemin, 2014; Chow et al., 2021).
Statement of the Problem

The literature suggest SAs are less likely to access mental health services than their non-SA peers (Davoren & Hwang, 2014) highlighting a possible potential for unmet mental health needs when considering approximately one in four SAs endorse clinically depressive symptoms (NCAA, 2022) and one-third of SAs moderate to severe levels of anxiety (Li et al., 2017).

Previous research on SA mental health and service utilization has overwhelmingly addressed White women who are more likely than their male and BIPOC counterparts to seek treatment (Wrisberg et al., 2009).

Scope and Significance of Study

Despite almost one in four NCAA SAs being racially marginalized (NCAA, 2019), research with respect to racially and other marginalized populations has been limited (Tran, 2020). Recognizing that the SA experience is unique and nuanced and often intersectional (Kaishian & Kaishian, 2022) depending on the groups they are a member of the need to better understand the experience of underrepresented and historically marginalized populations is emphasized. The current study evaluated NCAA SA mental health utilizing Engel’s (1977) biopsychosocial framework to highlight the interconnectedness of biological, psychological, and social factors SAs may experience. Student-athlete mental health can affect multiple life domains including academic, athletic, and social/personal performance and the study identified potential differences in SA mental health symptomology, stigma, and perceived helpfulness and access to support services. Recognizing the unique needs of marginalized SAs, the research aims to inform resources and services that are tailored to address differences that may be present across NCAA divisions, injury status, race, gender and sexuality. By evaluating these factors, the study provides a comprehensive understanding of the current mental health landscape for SAs offering
insight to guide future research, SA advocacy, policy and program development for colleges, universities and governing bodies, and practical interventions that support the holistic well-being of SAs across diverse backgrounds.

**Purpose and Research Questions**

The primary purpose of this study was to evaluate the underrepresented and historically marginalized SA experience with mental health services with the intent to extend knowledge and understand SA access and utilization of mental health services aiming to answer the following research questions:

1. How do student-athletes differ in their mental health symptoms (i.e., depression and anxiety), perception of mental health services, perceived access (knowledge and willingness) of services, and mental health stigma across NCAA division (i.e., D-I, D-II, D-III) and injury status (i.e., currently injured, not injured, previously injured)?

2. How do marginalized student-athletes differ in their mental health symptoms (i.e., depression and anxiety), perception of mental health services, perceived access (knowledge and willingness) of services, and mental health stigma across race and gender?

3. How do marginalized student-athletes differ in their mental health symptoms (i.e., depression and anxiety), perception of mental health services, perceived access (knowledge and willingness) of services, and mental health stigma based on sexuality/sexual identity?
Definition of Terms

**Anxiety**: According to the American Psychological Association (2023a), anxiety is characterized by worried thoughts and tension associated with fear of the future. It may manifest as performance anxiety.

**Athlete identity**: Athlete identity is defined as the degree to which one identifies with the athletic role or devotes particular attention to sport relative to other life activities (Brewer et al., 1993).

**Biopsychosocial framework**: A model introduced by Engel (1977) that challenged the biomedical view by taking into account the interconnectedness of biological, psychological, and social components to holistically evaluate patients.

**Depression**: A serious, yet common medical illness that negatively impacts how one feels, thinks, and acts. It may be characterized by the following symptoms: sadness, loss of energy/interest, changes in appetite, difficulty thinking and concentrating, and thoughts of suicide (American Psychiatric Association, 2023b).

**NCAA**: The governing body that regulates collegiate sport rules and protects student-athletes (NCAA, 2021a) which is broken into three divisions to account for institution size and resources.

**Perceived public stigma (PPS)**: Chow et al. (2021) conceptualizes PPS to be the negative attitudes held by the general public towards someone with mental illness. It is often based on stereotypes, discrimination, and prejudice.

**Personal stigma**: Personal stigma is an individual’s attitudes towards others with mental illness (Vogel et al., 2007).
**Self-stigma:** The concept of self-stigma often includes internalized PPS and often embodies negative attitudes towards one’s own mental illness (Vogel et al., 2007). It may create feelings of inferiority or inadequacy which may decrease help-seeking behaviors (Leimer et al., 2014).

**Stigma:** Stigma is a potential barrier to help-seeking (Gulliver et al., 2012). It is defined as a socially driven label and is associated with people who receive psychological help (Smith, 2007).

**Student-athlete:** An individual who balances the dual role of being both a student and participant in collegiate athletic competition.

**Team environment:** The team environment consists of culture and climate established by the coach including the values and beliefs that underpin behaviors (Baer & Frese, 2003), decision making, communication, and behaviors of leaders and followers (Hansen & Wernerfelt, 1989).

**Chapter Two: Literature Review**

“Sports are a microcosm of society (Weir, 2018, p. 50).” And as such, student-athletes (SAs) experience mental health concerns at a similar rate, if not higher, than their non-athlete peers (Gross et al., 2020). The National College Athletic Association (NCAA) was created to protect SAs (NCAA, 2021a) which now explicitly includes a commitment to advocate for mental health support to all SAs (NCAA, 2021h), as it is imperative to address the intense physical and mental demands of athletic expectations, academic workload, social obligations, and performance pressure that place SAs at an elevated risk for mental health concerns (Cromer et al., 2017). Student-athlete mental health, when not properly addressed, may significantly impact the SAs academic, athletic, and personal life performance (Rao et al., 2015). SAs are vulnerable
to injury, high expectations of self and others (e.g., coaches, teammates, family), and athletic failure which may disrupt concepts of identity and self-worth and cause increased risk for anxiety, depression, and suicidality. Considering the unique pressures SAs face it is important to better understand how their experience in balancing the stressors of being a college student in addition to being an athlete, plays a role in SA mental health.

**National College Athletic Association**

To protect SAs through rule regulation in collegiate athletics, the NCAA was created. Founded in 1906, the NCAA is the governing body that regulates collegiate sport rules and protects student-athletes (SAs; NCAA, 2021a). The mission of the NCAA is to foster lifelong well-being through providing world-class academic and athletic experiences for SAs. Currently, there are more than 500,000 SAs across the three athletic divisions including approximately 1,100 member schools in every state, the District of Columbia, Puerto Rico, and Canada (NCAA, 2021b). The current three-division structure of the NCAA occurred in 1973 to provide similar schools a fair playing field (NCAA, 2016b) and give SAs additional opportunities to earn a national championship (NCAA, 2021b). In leveling the playing field, the SA experience is expected to differ depending on which division they compete in.

**Division I**

Usually housing the largest student bodies, Division I (D-I) institutions generally have the largest athletics budgets, the most athletic scholarships (NCAA, 2021b), and generate the highest revenue of the three divisions. With more than 350 D-I schools, there are more than 170,000 SAs who compete on over 6,000 athletic teams each year (NCAA, 2021c). D-I programs prioritize a commitment to amateurism as a part of the SA educational experience (NCAA, 2021c).
Division II

Division II (D-II) comprises about 300 programs and 122,000 SAs. A distinguishing feature of the D-II model is its partial athletic scholarship which acknowledges and rewards students for their athletic abilities while also combining it with academic or need-based grants to fulfill financial responsibilities (NCAA, 2021d). Prioritizing balance, D-II institutions aim to provide SAs with a balance to reach their highest potential in sports, academics, community engagement, personal development, and wellness to succeed after college. Division II programs emphasize regional competition to decrease missed class time and allow families to follow SAs in competition (NCAA, 2021e).

Division III

The largest NCAA division with 195,000 SAs, Division III (D-III) is home to over 430 institutions (NCAA, 2021f). Division III institutions do not provide athletic scholarships and almost 80% of SAs receive academic or need-based grants or scholarships (NCAA, 2021f). Aimed at keeping SAs on a path to graduate, D-III schools promote a well-rounded collegiate experience which balances academic rigor, competitive athletics, and the opportunity to participate in other extracurricular activities. To prioritize SA comprehensive learning, conflict between athletics and academics is minimized through regional competition and shorter practices and seasons (NCAA, 2021g).

NCAA and Mental Health

The organization originated in 1906 following 18 deaths and 159 serious injuries caused by football just two years prior (NCAA, 2021a). Since its inception, protection of SAs has grown from focusing on athletic and academic concerns to also highlighting SA emotional and social concerns by acknowledging the significant need to address SA mental health. The NCAA
Constitution (2021h) states its commitment to SA well-being and development though the most recent iteration is the first of its kind to explicitly include the term mental health (NCAA, 2023a).

One of eight principles described in Article 1 of the NCAA Constitution (2021h), SA well-being, states that “intercollegiate athletics programs shall be conducted by the Association, divisions, conferences, and member institutions in a manner designed to protect, support and enhance the physical and mental health and safety of student-athletes (NCAA, 2021h, p. 2).” It goes on to express that institutions should create an environment that reinforces the importance of physical and mental health for SAs by providing access to resources and open dialogue in relation to concepts of physical and mental health. The principle concludes offering SAs protection from being disparaged or discriminated against because of their mental and physical health (NCAA, 2021h).

The recent addition of mental health in the NCAA Constitution is likely the result of several initiatives from years prior that have highlighted the need to address mental health concerns and how they impact SA performance holistically. Former NCAA President, Mark Emmert, considered SA well-being to be a guiding principle. In believing so, the NCAA Sport Science Institute was created to spearhead health and safety efforts in 2013 and is one of the leading organizations on SA well-being research. In 2014, the NCAA compiled the text *Mind, Body, and Sport: Understanding and Supporting Student-Athlete Mental Wellness*, a comprehensive overview of SA mental health aimed to help promote and develop strategies to understand and support the mental wellness of SA. Highlighted throughout the chapters were topics such as SA specific stressors (e.g., identity, performance, injury), clinical diagnoses including eating disorders, anxiety, and depression, cultural pressures on marginalized groups,
and necessary components in developing practices to construct mental health services for SAs (Brown, 2014).

The Mind, Body, Sport publication and Sport Science Institute were pivotal in developing the Inter-Association Consensus Document: Best Practices for Understanding and Supporting Student-Athlete Mental Wellness, also known as the Mental Health Best Practices (MHBP), a seminal publication that supports SA mental health and wellness (NCAA, 2021i). The MHBP consists of four practices intended to provide recommendations for promoting and supporting SA mental health at the institutional level through athletics and sports medicine departments regardless of resources or size (NCAA, 2016a). The best practices encourage, but do not require, schools to ensure SA mental health services are provided by a qualified, licensed professional, athletic departments work collaboratively with necessary stakeholders to develop action plans for SAs experiencing mental health challenges, development and usage of mental health screening tools, and educating SAs and athletic staff to create a culture that promotes help seeking, well-being, and resilience (NCAA, 2016a).

Student-athlete well-being and resilience were tested following the COVID-19 pandemic which forced the NCAA to place SA health and safety in the forefront and SA mental health under a microscope (NCAA, 2021a) as well as athletic departments to scrutinize their practices and action plans. The unexpected shut down of athletic competition in spring of 2020 resulted in canceled championships and seasons placing almost half a million SAs in uncertainty. Student-athletes were forced to deal with the unknown while also having to manage personal problems and issues, questions about their athletic identity, and inability to cope as they were no longer able to use their sport as a coping skill to support well-being.
In response to the COVID-19 pandemic, the NCAA collaborated with the Sport Science Institute as well as the Student-Athlete Advisory Committees to create the Student-Athlete Well-Being Study to examine the impact of COVID-19 on physical and mental well-being. The survey explored areas such as barriers to training, living, and learning environments, athletic cancelations, adherence to health guidelines, and SA mental health concerns. Over 70,000 SAs representing all three divisions, all sports, and all athletic conferences completed the survey with it being distributed spring 2020, fall 2020, and fall 2021 (NCAA, 2022). In spring 2020, results demonstrated that SAs were grappling with mental health concerns where they felt mentally exhausted, a sense of loss, sadness, hopelessness, and overwhelming anxiety while having trouble sleeping at the highest researched rates since SA mental health became an area of focus for the NCAA (NCAA, 2020). The numbers did decrease slightly in the fall of 2020, but SA mental health was still impacted noticeably throughout the COVID-19 pandemic. Though SA feelings of hopelessness decreased the most following the fall 2021 iteration of the SA Well-Being Study, mental health concerns remained on the minds of SAs, as evidenced by mental health concerns being reported to be 1.5-2 times higher than historically reported prior to 2020 (NCAA 2020). Student-athletes live a dual life in which they are expected to not only be college students navigating transition into adulthood, but also must learn to balance the expectations and demands of being an athlete while handling the biological, psychological, and social factors of life.

Biopsychosocial Framework

An understanding of Engel’s (1977) biopsychosocial (BPS) framework can provide a means of understanding SAs holistically. The BPS model was proposed to provide a blueprint to counter the dominant biomedical model which left no room to address social, psychological, and
behavioral components of illness (Engel, 1977). In his seminal work, Engel expressed concern with the unremitting pressures in both medicine and psychiatry to conform to mechanistic and reductionistic scientific methodologies which often created profound misunderstanding from unwise application and undesirable practices such as inappropriate use of diagnostic tests, overuse of medication, unnecessary hospitalization, and excessive surgery. Viewing physicians as preoccupied with procedures, Engel believed there was a lack of sensitivity to the personal problems patients and their families faced. In response to this concern, Engel (1977) addressed the need for a medical model which accounts for not only the patient, but also the social context in which they live as well as the system created by society to manage disruptive effects of illness.

Highlighting the ambiguous boundaries between health and sickness, Engel (1977) acknowledged that cultural, social, and psychological considerations needed to be addressed to challenge the biomedical view, which often led to paradoxical outcomes where people feeling well received positive lab results and a need for treatment and those feeling sick were assured they had no disease. Encompassing both circumstances, a BPS model would include both the person and the illness, weighing the contributions of biological, psychological, and social components to explain dysphoria and dysfunction (Engel, 1977). Advocating for robust professional knowledge spanning social, psychological, and biological concerns, Engel acknowledged that proper patient care would require a physician to evaluate patient presentation holistically to recommend the necessary course of action including referrals to other helping professions.

The NCAA’s *Mind, Body and Sport* (Brown, 2014) publication mentioned BPS factors when discussing the root causes of depression emphasizing that most mental health disorders are the result of several interrelated factors: biology—the genetic, biological, and physiological
components of a person, psychology—the mental state of being, and social factors—stressors, the environment, and other related influences. Despite the suggestion to consider biopsychosocial factors (Bader, 2014), application of the BPS framework in athletics is limited (von Rosen et al., 2017) with studies failing to include biological, psychological, and social concerns collectively. Research pertaining to the BPS health concerns of intercollegiate athletes is scant and often fragmented (Brown et al., 2022) focusing on singular aspects of SA health and wellness, such as injury (Heinrich et al., 2021; von Rosen et al., 2017) or depression (Proctor & Boan-Lenzo, 2010) not addressing the interplay of all domains of health: biological, psychological, and sociocultural (Engel, 1977; Brown, et al., 2022).

The BPS framework highlights the interconnectedness of an individual’s biological, psychological, and sociocultural processes and how these factors collectively influence a SAs’ overall health and well-being (Brown et al., 2020). Using the BPS framework, McDaniel et al. (2014) emphasized the notion that physical, biological, or somatic ailments do not occur without psychosocial consequences and vice versa. Considering the dual role of SAs in which they experience not only the common collegiate academic and personal stressors, but also additional stressors and concerns that may impact their performance in multiple areas including academically, athletically, and socially. For example, SAs who experience a biological stressor such as injury may have psychological consequences such as depression resulting from their inability to practice and/or play a loss which may impact their athlete identity and disrupt their social supports in no longer being able to interact as consistently due to injury.

**Biological Stressors**

**Exhaustion and Sleep.** To uphold the physical expectations of competitive sports, SAs are more likely to participate in overtraining and experience physical and mental exhaustion
(Vetter & Symonds, 2010). Maintaining dual roles, SAs daily schedules often require waking early and going to bed late to maintain the athletic and academic expectations to participate in NCAA athletics. In fact, the most recent NCAA (2023b) time management document details that SAs should expect to spend a minimum of 68 hours on academic and athletic activities each week with Division I, II, and III SAs expected to spend 35.5, 37, and 40 hours weekly on academics alone (NCAA 2023b). This is of course in addition to the athletic commitment which includes countable athletically related activities (CARAs) such as practice, supplemental workouts, strength and conditioning, competition, and film review that D-I (33 hours) and D-II (31 hours) SAs complete weekly. Division III rules only allow athletically related activities to occur during the declared playing season, though SAs should expect to spend at least 28 hours on these activities each week (NCAA, 2023b). Spending 68 or more hours each week on athletics and academics alone, SAs still must find time for other activities such as working, extracurriculars, socializing, and sleep, often resulting in exhaustion from the ever present mental and physical demands which enhance the risk factors related to athletics. Given the need to prioritize balance between academics, athletics, and overall well-being, a Division I women’s soccer player expressed that coaches could better support SAs by “focus[ing] on the balance between pushing [them] every day in practices/games to be better while also understanding the priority of academics and mental health” (NCAA, 2022, p. 151).

It is not surprising that mental and physical exhaustion may be a sign of both overtraining and burnout as well as a cause for decreased athletic performance (Vetter & Symonds, 2010). A Division III women’s ice hockey SA in the fall 2021 NCAA SA well-being study reported “we are tired…, and mentally exhausted and I don’t feel as if we are getting the…mental health support that we may need here” (p. 236). As evidenced by the previous quote, SA rates of mental
[and physical] exhaustion are elevated and have seen minimal change since 2020. In fact, 71% of men’s sports participants in the NCAA SA well-being study (2022) responded yes to feeling mentally exhausted within the last month, a 5% increase from fall of 2020 and 22% acknowledging feeling mental exhaustion constantly or almost daily. The SAs participating on women’s teams demonstrated a 3% increase in 2021 with 88% of women SAs reporting feeling mentally exhausted within the past month and 38% endorsing feeling mentally exhausted almost every day.

Though the rates of mental exhaustion across dichotomous gender are concerning, SAs who identify as BIPOC or LGBTQ+ report feeling mentally exhausted more than their White and heterosexual peers, respectively. BIPOC SAs (e.g., Black, Latinx, and other including American Indian/Alaska Native, Asian, Native Hawaiian, Pacific Islander, and other racial identities) reported rates higher than their White SA peers across dichotomous gender categories. Black, Latinx, and other women experienced the highest rates of exhaustion (i.e., 41, 43, and 44%, respectively) compared to White women (37%) and all men, with Black (24%), Latinx (23%), and other (26%) male SAs reporting feeling mentally exhausted almost every day compared to 21% of White male SAs (NCAA, 2022).

Rather than using the familiar term LGBTQ+ to identify SA sexual orientation, the NCAA SA Well-Being Study (2022) identified SAs as either Queer-Spectrum or straight with those who self-identify as gay, lesbian, bisexual, pansexual, questioning, or unsure being categorized as Queer-Spectrum (i.e., 2% men [N=76]; 12% women [N=776]). Alarmingly, SAs who identified as Queer-Spectrum, endorsed experiencing mental exhaustion rates almost double their straight SA peers across dichotomous gender with Queer-spectrum men and women feeling
mentally exhausted at a rate of 38% and 54% respectively compared to straight men (21%) and women (36%).

Despite increases in mental exhaustion across gender, race, and sexual identity, SAs report experiencing sleep difficulties and poor sleep quality. In fact, the NCAA Growth, Opportunities, Aspirations, and Learning of Students in College (GOALS; NCAA, 2019) found that SAs often do not get the recommended 7-9 hours of sleep with SAs reporting sleeping only 6 hours and 16 minutes of sleep per night further compounding poor sleep quality with decreased duration. When assessing sleep dysfunction in 230 Division I soccer players, Benjamin et al. (2020) revealed that 54% of participants indicated poor sleep quality. Poor sleep quality, specifically in female athletes, was reported in conjunction with increased levels of fatigue, tension, anger, confusion, depression, and total mood disturbance with decreased levels of vigor. Additionally, the NCAA SA Well-Being Study (2022) identified the highest rates of constant sleep difficulty (31% of men; 42% of women) in 2020 immediately following the unprecedented shutdown and though the rate has decreased, men and women SAs continued to endorse difficulty sleeping almost every day at a rate of 19 and 28%, respectively in the fall of 2021. Similar to mental exhaustion, BIPOC SAs experienced equal or higher rates of sleep difficulties than their white dichotomously gendered peers. Black men and women SAs endorsed sleep difficulty at rates higher than all other race/ethnicity groups with 23% and 24% respectively. Thirty-two percent of both Latinx and other women SAs endorsed sleep difficulties compared to 27% of White women SAs. Latinx men endorsed experiencing sleep difficulties at 21% compared to 18% of both other and White SAs. Again, in alignment with mental exhaustion Queer-spectrum individuals also experience constant sleep difficulties at rates higher than their
straight SA peers where 26% of men and 42% of women Queer-spectrum SAs endorsed difficulty sleeping versus 19 and 26% respectively for straight SAs (NCAA, 2022).

When considering SA sleep quality and difficulty, it is not surprising that decrements of sleep may place SAs at risk for mental health concerns and underperformance both athletically and academically (Benjamin et al., 2020). Previous studies have determined that duration and quality of sleep influence the mental processes related to skill memory consolidation which are linked to improved athletic performance. Similarly, for SAs to fully incorporate motor sequence learning high quality sleep is necessary. Furthermore, intense training in the military revealed that sleep loss has a detrimental effect on reaction time, mood, and attention (Lieberman, et al., 2005) all which may impact SA athletic performance and increase risk of illness or injury (Benjamin et al., 2020).

**Injury.** It is estimated that more than half of SAs have experienced at least one injury during their collegiate career (Hootman et al., 2007) with 50% of former SAs reporting suffering chronic injuries and 67% reporting major injuries throughout the duration of their career (Slama, 2021). Similarly, Vetter and Symonds (2010) surveyed 149 Division II SAs with 50% of respondents reporting chronic injury resulting in loss of time (e.g., missed practice or game). Furthermore, immediately following the COVID-19 lockdown, the injury incidence rate at a single Division I university increased by 10.5% (68.45 to 75.65) when injury rate was expressed per 1000-athlete-exposures (i.e., games) highlighting how the altered training regimen of SAs may have contributed to increased injury risk for SAs (Angileri et al., 2023).

Injury itself may not increase SA mental health concerns and in fact, emotional response to injury is to be expected (Putukian, 2016); however, SA response to injury and rehabilitation, the type of injury, time away from sport and SA support may play a role in SAs experiencing the
normal emotional reaction versus a problematic one (Putukian, 2016). A normal SA injury response may include sadness, isolation, irritation, lack of motivation, anger, frustration, changes in appetite, disturbance of sleep, and disengagement (Putukian, 2016) where problematic emotional reactions may demonstrate persistent, worsening, or excessive symptoms, including, but not limited to alterations in appetite triggering disordered eating, sadness transitioning to depression, lack of motivation developing into apathy, alienation caused by disengagement, excessive anger, emotional outbursts, and substance use.

The type of injury may impact SA mental health as certain injuries may manifest differently than others and have predictable timelines that guide SAs through recovery. Student-athletes with a visible physical injury, such as an ACL tear, are aware that they will likely need to undergo surgery to repair the damage and follow a predictable timeline of recovery to return to play; however, SAs experiencing a concussion often have an unknown timeline for both recovery and return to play. In both incidences of injury, the SA is expected to decrease if not eliminate physical activity altogether which may diminish their ability to handle stressors as many SAs use their sport to cope increasing the possibility of problematic emotional reactions (Putukian, 2014). The incidence of depression in athletes, especially football players, who may be more likely to experience concussions, is higher for those with an increased history of self-reported concussions (Putukian, 2016).

Considering the physical element of sports, most SAs are expected to experience some type of injury, but the severity of injury is directly related to the amount of time away from sport (Angileri, 2023). SAs with minor or acute injuries are less likely to experience significant, if any, time away from team and sport, but the ability for SAs to maintain peak physical health to sustain elite level of athletic performance (Brown et al., 2020) may be impacted, nonetheless.
The inability to participate in athletic activities as expected due to injury, especially for SAs in team sports, may increase the likelihood that a SA experiences problematic emotional reactions as a social support is diminished and some SAs may disengage or alienate themselves and experience increased mental health concerns such as depression, anxiety, and suicidality.

**Psychological Stressors**

**Depression.** Student-athletes feel that “it is impossible to separate or compartmentalize…and having a healthy mental state is key to playing well” (NCAA, 2022, p.151); however, approximately one in four SAs endorse feeling so depressed within the last month that it was difficult to function (NCAA, 2022). Depression, according to the American Psychiatric Association, is a serious, but common medical illness that negatively impacts how you feel, think, and act. Symptoms of depression include feelings sadness, loss of energy and interest, changes in appetite, weight fluctuation, difficulty thinking and concentrating, and thoughts of suicide or death (APA, 2023b), all of which could negatively impact SA academic and athletic performance. NCAA SAs represent a subculture being only 4% of the population of college students and the literature has offered conflicting information for the level at which SAs experience mental health concerns. SA rates of depression have been reported as both lower (Proctor & Boan-Lenzo, 2010) and higher than their non-athlete peers (Li et al., 2017). Cox et al. (2017) and Wolanin et al. (2016) reported the rates of SA depression to be 15.6% to 33.2% of student-athletes reporting clinically significant depressive symptoms; however, since the start of the COVID-19 pandemic in 2020, SAs have continually reported mental health concerns at elevated levels.

Not surprisingly, SAs experienced mental health concerns at the highest rate in spring 2020 at the start of the COVID-19 pandemic, with 28% of men’s and 39% of women’s sports
participants responding yes to feeling so depressed that it was difficult to function in the initial NCAA SA Well-Being Survey (2022). Alarmingly, the rate of SAs endorsing feeling so depressed to where it was difficult to function has only decreased slightly to 24 and 36% of men’s and women’s sports participants, respectively falling above and towards the higher end of previously reported data. Most notably, mental health concerns were experienced at higher rates by marginalized SAs (e.g., women, BIPOC, and LGBTQ+; NCAA, 2022). When looking across dichotomous gender, BIPOC and Queer-Spectrum SAs endorsed feeling so depressed almost every day that it was difficult to function more than their White and straight SA peers. Eight and 13% of BIPOC participants on men’s and women’s sports teams endorsed difficulty function due to depression compared to 5% and 8% of White SAs (NCAA, 2022). Black SAs participating on women’s sports teams are twice as likely to report depression impacting functionality compared to White SAs (17% vs 8%). Queer-Spectrum SAs endorsed constantly feeling depressed at double the rate of their straight SA peers on men’s sports teams (12% vs 6%) or more for women’s sports teams (19% vs 8%; NCAA, 2022). Depression among SAs is of significant concern as it impacts their ability to perform both athletically and academically, but it also often co-occurs with other disorders such as anxiety. A systematic review of 958 NCAA Division I SAs reported that 78% of SAs experiencing symptoms of depression also reported anxiety symptoms and 57% of SAs experiencing anxiety also reporting symptoms of depression (Li et al., 2017).

**Anxiety.** Anxiety is often characterized by worried thoughts and tension associated with fear of the future (APA, 2023a) and SAs are not exempt. Li et al. (2017) reported that approximately one-third of SAs experienced moderate to severe levels of anxiety endorsing symptoms such as excessive worry due to pressure to succeed and the feeling of being
overwhelmed. These pressures do not have to be overtly experienced as intrinsic pressures may manifest as performance anxiety and impact SA athletic performance (Clark et al., 2019). SAs who endorse feeling symptoms of anxiety may have changes in appetite, sleep difficulties, feelings of apprehensiveness, dizziness, and increased heart rate all of which may impair SA performance (Ryan et al., 2018). Anxiety may also present in different forms including obsessive compulsive disorder, post-traumatic stress disorder, panic attacks, and phobias (Brown, 2014).

The NCAA’s Mind, Body, Sport (Brown, 2014) publication included a study where 85% of athletic trainers identified anxiety as an issue for SAs that may be exacerbated in stressful situations, such as competition. The most recent iteration of the NCAA SA Well-Being Study (2022) addressed SAs feeling overwhelming anxiety constantly and within the past month. Across gender dichotomy, SA participants on both men’s (12%) and women’s (29%) sports teams endorsed constantly feeling overwhelmed by anxiety with 45% of men’s participants and 72% of women’s participants responding yes to feeling overwhelming anxiety within the past month. Unlike depression, BIPOC SAs did not report feeling overwhelming anxiety more than their White peers. In fact, BIPOC SAs on women’s teams reported feeling constantly overwhelmed by anxiety at the same rate (29%) as their white peers and BIPOC SA participants on men’s teams reported lower rates of overwhelming anxiety than their White peers (11% vs 12%); however, a specific racial/ethnic breakdown was not provided. Queer-Spectrum SAs participating on men’s sports teams endorsed feeling overwhelming anxiety almost three times more than their straight SA peers and though Queer-Spectrum SAs participating on women’s teams reported higher rates than their straight peers it the difference was not as large (41% vs 27%; NCAA, 2022).
It is important to mention that in addition to the co-occurrence of anxiety and depression, SAs who endorse symptoms of either may be at increased risk for injury. In fact, SAs who participate on men’s teams and endorsed experiencing both anxiety and depression symptoms on a preseason baseline were at increased risk for injury (Li et al., 2017). The risk, regardless of gender, was highest for SAs who experienced anxiety symptoms, but not depression symptoms. Student-athletes who endorsed preseason depressive symptoms only were not at increased risk for injuries. Though SAs who are injured may experience symptoms of anxiety and depression because of their injury, it should not be overlooked that these symptoms may also put SAs at an increased risk for not only injury (Li et al., 2017), but also thoughts of suicide (Rao et al., 2015).

**Student-Athlete Suicidality.** Student-athletes experiencing mental health concerns such as depression and anxiety, especially when untreated, may be at a greater risk for suicidal ideation, suicide attempts, and death by suicide (Rao et al., 2015). Though the SA suicide rate is lower than the general population, Rao et al. (2015) found that 35 collegiate SAs died by suicide from 2003-2012 with suicide being identified as the fourth leading cause of death for SAs; however, since the inception of this study, suicide is now the second leading cause of death (Whalen et al., 2024). This is not surprising when considering in the spring of 2022 alone, five SAs are known to have died by suicide (Parrott, 2023). This number is above the annual average of less than four previously found by Rao et al. (2015). Although considering all SA deaths are not required to be entered into the voluntary SA death database, this average is likely underreported (Rao et al., 2015, Whalen et al., 2024).

Previous research has reviewed the effects of participating in athletics and exercise on suicidality and depression with differing conclusions (Rao et al., 2015). Armstrong and Early (2009) report that SAs demonstrate higher levels of self-esteem and experience greater social
connectedness which results in lower levels of depression than their non-athlete peers. Brown and Blanton (2002) report that people participating in sports could be at decreased risk for suicidality than those who are less physically active considering physical activity has been identified to decrease mild to moderate depression. Student-athletes may also experience protective factors that lead to more positive mental health such as access to a network of peers experiencing similar stressors who may act as informal social and/or emotional support which may reduce the risk for suicidal behavior. As a result, SAs have been identified as less likely to consider, plan and attempt suicide because of their membership on a college sports team (Brown & Blanton, 2002) with the suicide rate for NCAA SAs being significantly lower than both the general population and other college students who do not participate in collegiate athletics (Maron et al., 2014); however, others have acknowledged the increased willingness of some student-athletes to frequently participate in risk-taking behaviors (Kokotailo et al., 1996). This possible increased willingness for high-risk behaviors, such as careless sexual encounters, smoking marijuana, and binge drinking (Maron et al., 2014), could heighten the likelihood of depression and suicidality due to experiences unique to student-athletes such as the pressures of competitive sport and concerns of injury which may result in their inability to participate (Kokotailo et al., 1996).

Rao et al. (2015) and Maron et al. (2015) both utilized the NCAA Memorial Resolutions database in addition to other resources (e.g., news articles, U.S. National Registry of Sudden Death in Athletes) to identify SA deaths by suicide to be more than 30 within a 10-year period. The median age of SAs who died by suicide is approximately 20 (Maron et al., 2015; Rao et al., 2015), with SAs across scholastic classes (8-freshman, 10-sophomores, 5-juniors, and 9-seniors; 3-unknown; Rao et al., 2015). Eighty-three percent (n = 29) of the SAs who died by suicide were
male creating a significantly higher rate of suicide for male SAs compared to female \((n = 6)\) with gender only being addressed dichotomously. When considering men have a three times higher suicide rate than women per 100,000, \((1.34 \text{ vs } 0.37; \text{Rao et al., 2015})\), it is not surprising that they also have an increased relative risk for suicide compared to their female counterparts who may demonstrate higher rates of suicidal ideation \((\text{Rao et al., 2015; Tran, 2020; Wolanin et al., 2016})\); however, in 2022, four out of five SAs who died by suicide were women.

According to the American College Health Association \((\text{ACHA; 2019})\) spring data, 10% of SAs have considered suicidal ideation. National data, though limited, suggests increased risk for mental health concerns including suicidality for some racially/ethnically marginalized SAs compared to White SAs \((\text{Tran, 2020})\). When factoring SA race in deaths by suicide, 24 SAs \((68.5\%)\) were White, 7 \((20\%)\) were Black, and 4 were of other racial/ethnic backgrounds, with Black SAs having a higher death rate by suicide \((1.22/100,000)\) than White SAs \((0.87/100,000)\) and SAs of other ethnic groups \((0.89/100,000; \text{Rao et al., 2015})\). Maron et al. \((2013)\) reported similar breakdowns regarding race, though slightly lower than data reported by Rao et al. \((2015)\). Though population-based estimates of the general population show an increased relative risk for suicide in White college students when compared to Black college students, one study providing comparative insights specifically on SAs demonstrates a nonsignificant increased risk ratio for Black SAs compared to White SAs \((\text{Rao et al., 2015})\). This finding may imply that mental health disparities present with SAs may not mirror the trends of the general population with respect to race potentially highlighting the notion that Black and other racially/ethnically marginalized SAs may be at equal if not greater mental health risk than their White SA counterparts. Tran \((2020)\) identified rates of suicidal ideation for Hispanic/Latinx and Native American SAs as 5.3% and 13.2% respectively. Actual rates of suicidal attempts for Native American SAs in 2015 was 5.3%
compared to 0.9% for White SAs. Native American SAs demonstrate the highest estimates of suicidality though this could be attributed to the small sample size. Small sample size may also play a role in the lack of research focusing on SAs who identify as LGBTQ+ or Queer Spectrum. Despite a gap in the research on SAs who identify as LGBTQ+ with regards to mental health (Antoniak et al., 2022) and suicidality, LGBTQ+ youth are at an elevated risk for suicide attempts and death by suicide (Marshal et al., 2011; Rankin & Weber, 2014) than their heterosexual peers.

Just as SAs death by suicide occurs without respect to age, class, gender, race, or sexuality, it also spans across NCAA divisions and different sport types. NCAA Division I, which has the most demanding training and competition expectations, has the highest number of SA deaths by suicide, with Division II schools having a lower, but similar, rate to Division III (Maron et al., 2015; Rao et al., 2015). It is important to note that despite Division I and III having a similar number of NCAA participants, D-I SAs have a higher death by suicide rate per 100,000 than D-III SAs (1.14 vs. 0.61). When discussing sport type, there was a statistically significant difference in which football had the highest incidence of suicide compared to all other sports (Rao et al., 2015). Football SAs not only have the highest incidence, but they also have an increased relative risk of committing suicide compared to male SAs who play a sport other than football and all other NCAA SAs regardless of gender (Rao et al., 2015). Minimal literature provides explanation to the increased mortality rate of football players in which they are twice as likely to die by suicide; however, increased likelihood of injury, concussion, and career termination may play a role (Parsons et al., 2020). Though SA incidence of suicide and relative risk for suicide is lower than peers their age, the risk is still present. Despite the possible protective factor of being integrated into a supportive social network, as the Durkheim theory of
suicidality suggests (Durkheim, 1966), SA social stressors such as team environment and sport type may impact SA susceptibility to depression, anxiety, and suicidality (Power et al., 2020; Saxe et al., 2022).

**Social Stressors**

As highlighted with the biopsychosocial framework, psychological concerns play a key role in SA mental health, but social stressors such as team environment, athlete identity, COVID-19, and more also play a similar role in protecting or exacerbating SA well-being. Student-athlete mental health may be significantly influenced by their environment (Saxe et al., 2022) and with D-I, II, and III expected to spend 33, 31, and 28 hours respectively involved in athletics-related activities per week (NCAA, 2023b), anecdotal evidence often suggests an association between SA mental health and the team environment (Saxe et al., 2022).

**Team environment.** The team environment consists of both its culture and climate established by the coach with the former referring to the values and beliefs that underpin team behavior and decisions (Baer & Frese, 2003) and the latter consisting of daily manifestations of the culture including decision making, communication, and the behaviors of leaders and followers (Hansen & Wernerfelt, 1989). Team cohesion and team inclusion, among other things, are often the result of the interpersonal behaviors of a coach (Hwang & Choi, 2016; Hague et al., 2021) and can both positively and negatively impact performance and well-being of SAs (Saxe et al, 2022). Bissett et al. (2020) and Henriksen et al. (2020) point to the importance of the team environment and the promotion of mental health, though research is limited in explicitly exploring how the team environment influences mental health. In a study assessing perceptions of psychological safety of SAs on women’s sports teams, Saxe et al. (2022) provided further support for previous research highlighting that depending on the culture created and the leader
sport can foster or diminish SA mental health and this was evident in the most recent iteration of the SA well-being study (2022) with a Division III member of women’s swimming and diving desiring coaches “spend more time getting to know athletes outside of sport, supporting their mental health, and working on improving team culture” (p. 240). Though managing mental health concerns of SAs is not the full responsibility of a coach, it is their responsibility to create a culture that emphasizes, supports, and destigmatizes SA mental health.

**Individual vs. Team sports.** In addition to the coach, culture, and climate, the aspect of individual and team sports may also be influential with SA mental health (Pluhar et al., 2019). A previous study by Saxe et al. (2022) found that SAs participating in individual sports may be at greater risk for mental health concerns with 13% SAs of individual sports reporting anxiety and depression compared to 7% of SAs participating in team sports. This increase may be attributed to feeling increased pressure to perform, being overly focused on outcomes, and experiencing more internal attribution following failure. Additionally, Ingeno (2016) identified that SAs participating on a Division I track-and-field team were twice as likely to endorse clinically relevant depressive symptoms compared to women’s soccer and softball participants. This could allude to a lack of social support for SAs in individual sports resulting from loneliness and feeling the weight of failure alone (Nixdorf et al, 2016).

**Athletic identity.** Another aspect that may impact SAs in individual and team sports alike is SA identity. Athlete identity is defined as the degree to which one identifies with the athletic role or devotes particular attention to sport relative to other life activities (Brewer et al., 1993). In fact, SAs who endorse higher levels of athlete identity demonstrated a 72-93% higher risk of reporting depression symptoms than those with moderate or low levels of athlete identity. When considering SA identity across NCAA divisions, Huml (2018) found that Division I and II
SAs exhibited similar levels of athlete identity, both of which were higher than Division III SAs. The differences observed in athletic identity across divisions may be attributed to the philosophy of each division and the emphasis on a holistic college experience in Division III (Stokowski et al., 2022).

**COVID-19.** Although SAs across divisions may report athlete identity at various levels, SAs at each level had to navigate the impact of COVID-19. Not surprisingly, the highest rates of mental health concerns were experienced by SAs following the unprecedented shutdown in Spring 2020 (NCAA, 2022). It is important to note that though all SAs experienced COVID-19, not all SAs experienced it the same with more Latinx (18%) and Black (17%) SAs reporting that COVID-19 health concerns negatively impacted their mental health in the month prior compared to White (14%) and other race/ethnicity (13%) SAs. When considering 29% of Latinx SAs and 26% of Black SAs had someone close to them hospitalized or die due to COVID-19 (NCAA, 2022), the increased mental health concerns are expected. COVID-19 played a role in challenging athlete identity (Antoniak, 2022), increased injury following return to play (Angileri, 2023), and the removal of the protective factors often associated with participating in sport (e.g., coping and social support), all which may play a role in increased SA mental health concerns; however, understanding mental health concerns of SAs is not enough.

**SA Access to and Utilization of Services**

Identifying biopsychosocial stressors for SAs only addresses one facet of understanding SAs’ mental health. In recognizing that SAs experience mental health concerns at a similar, if not higher, rate than their non-athlete peers (Wolanin, 2016) it is important to assess the access and utilization of mental health services available to SAs. The literature is scant with respect to generalizable data on the access to and utilization of mental health services for SAs. Way et al.
(2020) surveyed SAs across the three athletic divisions (e.g., Division I, II, and III) which were created to align similar campuses with respect to philosophy, opportunity, and competition level (NCAA, 1973). Previous literature identified that most D-I SAs were knowledgeable about having access to mental health services on campus and that D-II and D-III SAs view mental health services as more accessible to their D-I counterparts (Way et al., 2020). The most recent SA Well-Being Study (2022) demonstrated that the percentage of SA participants who agreed or strongly agreed that they know where to go on campus if they have mental health concerns was similar across NCAA divisions. Access to services across divisions and institutions may look different and it is important for SAs to know where to go for services to consider utilizing mental health support. Student-athletes may have access to a plethora of intervention services depending on institution including mental health literacy (i.e., addressing knowledge and belief about mental health disorders; Chow et al., 2021), campus counseling services (i.e., on campus and/or embedded in athletics), and sports psychology or mental performance, though many SAs may prefer and be more apt to seek social support from coaches, teammates, family and friends (Kissinger & Watson, 2009).

According to the SA Well-Being Study (NCAA, 2022), across divisions, participants on women’s sports teams are more knowledgeable of where to go for mental health support than participants on men’s teams (69% vs 63%) with one Division II baseball player desiring to be introduced to the therapist and mental health resources available on campus as he “know[s] [his] school has them, [he] just [does] not know who or where they are”. More specifically, SAs participating on women’s sports teams in D-III (71%) were more likely to know where to go than both their D-II (68%) and D-I peers (67%) and SAs participating on D-II and D-III men’s sports teams endorsed knowing where to access mental health support at a slightly higher rate than their
D-I counterparts (64 vs 63%). When looking at marginalized SAs, Black, Latinx, and other ethnicity SAs are less knowledgeable of where to go to find mental health support than White SAs; however, Queer-Spectrum SAs endorsed knowing where to go for mental health support at the same rate as their straight SA peers (67%; NCAA, 2022).

Being knowledgeable of where to seek mental health support is often not enough. SAs must also feel comfortable seeking and utilizing support which may influence the notion that SAs utilize mental health services at a lower rate than their non-athlete peers, except for D-I SAs who utilized services at an equal or greater rate (Kilcullen et al., 2022) than the non-athlete student population. In fact, no more than 49% of the population subsets (e.g., race, gender, division) surveyed during the SA Well-Being Study endorsed feeling comfortable seeking support from a mental health provider on campus apart from Latinx men (52%; NCAA, 2022).

In considering SAs’ access and utilization, it is imperative to address the barriers that may lead to SA underutilization of services (Ryan et al., 2018). Specific barriers identified by SAs that hinder their willingness to seek services include time constraints, being unable to identify mental health symptoms and disorders, and not knowing where or when to get help (López & Levy, 2013; Beauchemin, 2014). Often depicted as invincible (Gulliver, 2012), SAs encounter barriers to willingly seek help due to not wanting to be seen as weak, being in an environment where the notion of mental toughness may conflict with seeking help for mental health concerns (Ryan et al, 2018), and not wanting others to know about their mental health concerns (Gulliver, 2012) for fear of stigma which may provide a barrier to SA help-seeking behaviors. Smith (2007) identified stigmatization to be a socially driven label that is associated with people who receive psychological help and accounts for 66% of variance in SA help-seeking attitudes (Wahto et al., 2016).
Stigma can be broken down into three specific types: perceived public stigma (PPS), self-stigma, and personal stigma with each impacting student help-seeking behaviors differently (Chow et al, 2021). Perceived public stigma refers to the negative attitudes held by the general public towards someone with mental illness and is often based on stereotypes, discrimination, and prejudice (Chow et al., 2021); it often reflects SA concerns that they may be viewed negatively or as weak by coaches or teammates for seeking help (López & Levy, 2013). Self-stigma often includes internalized PPS, embodies negative attitudes towards one’s own mental illness (Vogel et al., 2007), and may create feelings of inferiority or inadequacy which decrease the likelihood of seeking support (Leimer et al., 2014). Personal stigma is an individual’s attitudes towards others with mental illness. Vogel et al. (2007) identified that stigma was greater for seeking help than being diagnosed with a mental illness and that treatment will be avoided if the risks outweigh the benefits. Unfortunately, for SAs, that risk may be too great (López & Levy, 2013), as evidenced by the majority of SAs reporting they would not feel comfortable seeking mental health support (NCAA, 2022).

In fact, despite the majority of SAs reporting they know where to go for mental health concerns, 54% and 52% of all SAs participating in men’s and women’s sports, respectively, report they would not feel comfortable seeking support from a mental health provider on campus highlighting the role that self-stigma may play in seeking help. Black SAs participating on men’s and women’s teams feel the least comfortable seeking support with only 42% endorsing they would seek support. Latinx SAs on men’s teams feel the most comfortable seeking mental health support on campus with 52% endorsement; however, they were the only demographic to endorse comfortability with seeking support over 50% according to the SA Well-Being Study (NCAA, 2022). There is only one percentage point difference when referencing SA comfort with seeking
support with Queer-spectrum SAs being slightly less comfortable than their straight peers though the majority of both demographics (54% and 53% respectively) endorsed not being comfortable seeking support. When considering PPS, it is important to assess SA perception of mental health support from coaches, teammates, and athletic departments. It is interesting to see that despite SAs on men’s teams feeling less comfortable with seeking mental health support they endorse the notion that their coaches take mental health concerns seriously (59%) and that mental health is a priority to the athletics department (55%) at a rate higher than women’s sports (50% and 47% respectively); however, participants on women’s sports teams do feel their teammates take mental health concerns seriously (65%) at a greater rate than SAs in men’s sports (58%; NCAA, 2022).

Similar to comfortability seeking support, Black SAs on both men’s and women sports teams are less likely to endorse their coaches taking mental health concerns seriously (NCAA, 2022) which could potentially worsen SA well-being (Tran, 2021). When looking at SA perception of coaches taking mental health concerns seriously on men’s sports teams, across racial/ethnicity demographics, Latinx men’s team members (63%) endorse agreement more than white SAs (60%) followed by other and Black men’s team members (57% and 55% respectively). For participants on women’s teams, 50% of Latinx, other, and White participants endorse coaches taking mental health concerns seriously compared to 47% of Black women’s team members. Queer-spectrum SAs are less likely to endorse that coaches take mental health concerns with only 46% agreeing compared to 53% or straight SAs (NCAA, 2022).

Student-athlete perception of mental health support does not stop with the coach as the athletic department must consider mental health a priority to ensure all SAs are provided with the services they need. Interestingly, Latinx and Black SAs on both men’s and women’s teams
endorse athletic departments taking mental health concerns seriously at a greater rate than other
and white SAs with those identified as other endorsing the lowest agreement (NCAA, 2022).
Queer-spectrum SAs are the least likely of any demographic to believe mental health is a priority
to athletics departments with only 39% endorsing such compared to 51% of straight SAs
(NCAA, 2022). It is apparent from the most recent SA Well-Being Study (NCAA, 2022) that
many SAs across gender, race/ethnicity, and sexual orientation do not feel comfortable seeking
mental health support, do not feel coaches take mental health concerns seriously, and that SA
mental health is not a priority to athletics departments despite the elevated risk of mental health
concerns due to mental and physical demands, academic expectations, social obligations, and
pressure to perform at high levels (Cromer et al., 2017).

**Current Study**

The literature suggests that SAs may be less likely to access mental health services than
non-student-athletes (Davoren & Hwang, 2014; Moreland et al., 2018; Ballesteros & Tran, 2020,
Kaishian & Kaishian, 2022). This realization identifies the potential for unmet mental health
needs when considering one-third of SAs endorse clinically depressive symptoms (Wolanin et
al., 2016) or moderate to severe levels of anxiety (Li et al., 2017). Previous research on SA
mental health and service utilization has largely addressed women, more specifically White
women, (Wrisberg et al., 2009) who are more likely than their male counterparts to seek
treatment. Although approximately one in four NCAA SAs are racially marginalized (NCAA,
2018), literature examining racially and other marginalized populations has been limited (Tran,
2021). Considering “the experience of the student-athlete is both unique and nuanced depending
upon the intersectionality of the groups the athlete belongs to” (Kaishian & Kaishian, 2022, p.
272) the need to focus on racially and other underrepresented and historically marginalized populations is emphasized.

Previous studies have revealed that 78% of racially marginalized SAs endorsed some mental health concerns with only 11% seeking and utilizing mental health services (Tran, 2021). According to Tran (2021), data suggests that racially marginalized SAs are at an increased risk of depression and suicidality, having significantly higher suicidal ideation and attempts than white SAs. Kroshus and Davoren (2016) report that 81% and 85% of LGBTQ+ participants on men’s and women’s teams, respectively, endorsed risk factors for mental health concerns and despite a gap in the literature specific to SAs, LGBTQ+ youth are at an elevated risk for suicide attempts and death by suicide (Marshal et al., 2011; Rankin & Weber, 2014). When coupling this with the increased suicide rate of SAs in 2022, evidence supports the need to better understand marginalized SA mental health, treatment, and help seeking behaviors. Taken together, the purpose of this study was to examine the underrepresented and historically marginalized SA experience with mental health services with the intent to extend knowledge and understand SA access and utilization of mental health services aiming to answer the following research questions:

1. How do student-athletes differ in their mental health symptoms (i.e., depression and anxiety), perception of mental health services, perceived access (knowledge and willingness) of services, and mental health stigma across NCAA division (i.e., D-I, D-II, D-III) and injury status (i.e., currently injured, not injured, previously injured)?

2. How do marginalized student-athletes differ in their mental health symptoms (i.e., depression and anxiety), perception of mental health services, perceived access
(knowledge and willingness) of services, and mental health stigma across race and gender?

3. How do marginalized student-athletes differ in their mental health symptoms (i.e., depression and anxiety), perception of mental health services, perceived access (knowledge and willingness) of services, and mental health stigma based on sexuality/sexual identity?

**Chapter Three: Methodology**

**Introduction**

The purpose of this study was to add to the general body of knowledge of collegiate SA mental health with emphasis on examining the experience of historically marginalized SAs. This study utilized demographic data and survey questions to explore SA mental health concerns and access to and utilization of services. The research examined whether SAs experience mental health concerns differently across division, injury status, and/or marginalization status.

**Research Design**

This study intended to expand on Tran’s (2021) examination of potential barriers and facilitators to student-athletes (SAs) seeking and utilizing mental health treatment specifically focusing on understanding the differences in unmet mental health needs processes with respect to race/ethnicity. Though Tran (2021) utilized historical data from the 2015-2019 cohorts of the Health Minds Survey (2019), the current study intended to understand unmet mental health needs experienced by diverse SA’s. The current study similarly aimed to highlight unmet mental health needs but instead focused more broadly on SAs who identify as underrepresented and/or historically marginalized not only by race/ethnicity, but also sexual orientation. This study examined the underrepresented and historically marginalized SA experience with mental health
services with the intent to extend knowledge and understand SA access and utilization of mental health services across NCAA divisions answering the following research questions:

1. How do student-athletes differ in their mental health symptoms (i.e., depression and anxiety), perception of mental health services, perceived access (knowledge and willingness) of services, and mental health stigma across NCAA division (i.e., D-I, D-II, D-III) and injury status (i.e., currently injured, not injured, previously injured)?

2. How do marginalized student-athletes differ in their mental health symptoms (i.e., depression and anxiety), perception of mental health services, perceived access (knowledge and willingness) of services, and mental health stigma across race and gender?

3. How do marginalized student-athletes differ in their mental health symptoms (i.e., depression and anxiety), perception of mental health services, perceived access (knowledge and willingness) of services, and mental health stigma based on sexuality/sexual identity?

**Population and Sampling Procedures**

Participants in this study were rostered SAs competing in an NCAA sanctioned individual or team sport during the 2023-2024 school year. Division I, II, and III SAs were recruited as a convenient sample from NCAA institutions.

*Inclusion Criteria.* Participants were collegiate SAs 18 years or older, fluent in the English language, and competing in NCAA Division I, II, or III athletics.

Following Institutional Review Board approval, convenience sampling was used to recruit with participants solicited via email and social media to institution Athletic Directors requesting SA participation. A Qualtrics survey (see Appendix A) was developed for electronic
completion by participants. An introductory email was sent to Division I, II, and III Athletic Directors to explain the purpose of the study and request that the survey link be forwarded to SAs at their institution for study participation. The survey remained open for a month and reminder emails were sent to athletic directors weekly. In the text of the invitation email, participants were provided the Qualtrics survey link, informed consent identifying the risks, benefits, and goals of the study prior to the survey (see Appendix B). Participants were given digital mental health resources prior to submitting the survey. Responses were collected anonymously with all data stored on the University of Memphis Qualtrics server with raw data maintained on a password protected device accessible only to the primary investigator.

**Measures and Instrumentation**

**Depression**

The Patient Health Questionnaire (PHQ) is often used when assessing mental health of the general population but has more recently been identified as one of the suggested mental health screenings for SA pre-participation examinations (Klenck, 2014; Brown et al., 2020; Stokowski et al., 2022; Keenan et al., 2023). Though not the only requirement for diagnosis of clinical depression, the PHQ is a diagnostic tool that can be utilized when assessing mental health and identifying those who may be at risk for depression. The PHQ is a 3-page fully self-administered survey which was created as a more efficient method than the Primary Care Evaluation of Mental Disorders (PRIME-MD) which was the first of its kind to be used in primary care settings that diagnosed specific disorders based upon the *Diagnostic and Statistical Manual of Mental Disorders* (Spitzer et al., 1999). Where the 26 item PRIME-MD screened for some of the most common mental health concerns treated in primary care (e.g., major depression, anxiety, alcohol, eating, and somatoform disorders; Spitzer et al., 1999), the PHQ
also identifies subthreshold disorders (e.g., other depressive disorder and probably alcohol abuse/dependence; Kroenke et al., 2001). One modification in the PHQ compared to the PRIME-MD was the shift from dichotomous (yes/no) responses to expanded categories assessed using a 4-point Likert Scale to allow for a measurement of severity. Since its creation, the PHQ has been used in different variations depending on the number of items on the questionnaire including the PHQ-2 (Levis et al., 2020), PHQ-4 (Antoniak et al., 2022; Meidl et al., 2022), PHQ-8 (Kroenke et al., 2009), and PHQ-9 (Kroenke et al., 2001) which will be employed for the current research.

The PHQ-9 is the depression module from the full PHQ that assesses depressive symptoms over the past two weeks. Intended to be a brief measure, it has only 9 items and one follow up question which assesses the degree of difficulty identified problems may cause. The questionnaire includes items such as, “over the last 2 weeks, how often have you been bothered by any of the following problems? Feeling down, depressed, or hopeless” or “Trouble falling or staying asleep or sleeping too much”. Symptom severity and frequency are assessed using a 4-point Likert Scale: 0 (not at all), 1 (several days), 2 (more than half the days), 3 (nearly everyday) for a range of 0-27 (Kroenke et al., 2001). Scores are categorized from minimal to severe with 0-4 considered minimal, 5-9 mild, 10-14 moderate, and 15 or more severe (Kroenke et al., 2001) with moderate to severe symptoms (10 or more) generally accepted as clinically relevant depression symptomology (Kroenke et al., 2001; Keenan et al., 2023).

A systematic review of depression screening tools by El-Den and colleagues (2018), found the PHQ sensitivity to range from 28%-95% with a range of 61%-98% for specificity and the internal and test-retest reliability for the PHQ is decent when utilized for people who are 18 and older where the Cronbach α ranges from 0.56-0.94; El-Den et al., 2018). Within a racially diverse sample of college students, the PHQ-9 had acceptable reliability (Cronbach α = 0.89,
Keum et al., 2018). The PHQ in its many iterations has been used within athletic populations to assess the severity and impact of depression on SAs across race/ethnicity (Tran, 2020), gender (Tran, 2020; Brougham, 2021), and athletic division (Wilson et al., 2022; Grimm et al., 2023) in addition to relationship with concussion (Carson et al., 2021), injury (Putukian, 2015), social media (Brougham, 2021), and stigma (Keenan et al., 2023) in an effort to improve SA mental health and referral processes (Daltry et al., 2021). With respect to stigma, it is important to highlight that Keenan et al. (2023) recommends a lower cut-off score of 6 or more for SAs considering the likelihood of underreporting symptoms for fear of not wanting to be perceived as weak (Wahto et al., 2016). A cut-off score of six or more in SAs would be optimal to identify clinically relevant depression symptoms (Keenan et al., 2023) instead of a score of ten identified in the general population (Kroenke et al., 2001). The PHQ-9 is a valid screening tool for depression and the optimal cut-off score maintains a sensitivity of 78% and specificity or 75% both of which are within the range of previous findings.

**Anxiety**

Anxiety is often assessed utilizing the Generalized Anxiety Disorder-7 (GAD-7). Similar to the PHQ-9, the GAD-7 was created from the PRIME-MD PHQ out of need for a shorter, more efficient diagnostic tool to be used within clinical practice (Spitzer et al., 2006). With only seven items and one follow up question which assesses the degree of difficulty identified concerns may cause, the GAD-7 asks questions such as “Over the last two weeks, how often have you been bothered by the following problems? “Feeling nervous, anxious, or on edge” or “Not being able to stop or control worrying”. Symptom severity and frequency are assessed using a 4-point Likert Scale: 0 (not at all), 1 (several days), 2 (more than half the days), 3 (nearly everyday) for a range of 0-21 (Spitzer et al., 2006). Scores are categorized from minimal to severe with 0-4
considered minimal, 5-9 mild, 10-14 moderate, and 15 or more severe (Kroenke et al., 2001) with moderate to severe symptoms (10 or more) generally accepted as clinically relevant anxiety symptomology (Spitzer et al., 2006).

A valid measure, the GAD-7 demonstrates good convergent validity when assessed in conjunction with both the Beck Anxiety Inventory (r = 0.72) and the Symptom Checklist-90 anxiety subscale (r = 0.74; Spitzer et al., 2006). The GAD-7 is also found to have high criterion validity and strong construct validity for identifying GAD in people 18 or older (Spitzer et al., 2006). The GAD-7 was also found to have excellent internal consistency (Cronbach α = 0.92) and good test-retest reliability (intraclass correlation = 0.83; Spitzer et al., 2006). Though normed within then general population, the GAD-7 has demonstrated acceptable internal consistency in athletic populations (Fraser et al., 2016) indicating the GAD-7 to be an efficient and valid screening tool to be used within sports medicine (Keyes, 2002) as part of the pre-participation examination.

The PHQ-9 and GAD-7 have been combined as a composite measure of depression and anxiety in previous studies being referred to as the 16-item Patient Health Questionnaire Anxiety-Depression Scale (PHQ-ADS). Kroenke et al. (2016) examined the reliability and validity of the PHQ-ADS using baseline data of 896 patients in three clinical trials involving patients enrolled in chronic pain trials through two primary care facilities and one oncology practice. The PHQ-ADS scores can range from 0-48 (with more severe depression/anxiety scores being higher) with cut points indicating minimal (0-9), mild (10-19), moderate (20-29), and severe (30-48) levels of depression and anxiety symptomology. The PHQ-ADS demonstrated high internal reliability (Cronbach α = 0.80-0.90) and strong convergent (0.70-0.80) and construct (0.40-0.60) validity in all three trials.
**Demographic Information**

Participants provided self-reported age, athletic division (I, II, or III), sports team, year of athletic eligibility, grade point average (GPA), scholarship, race, ethnicity, gender identity, and sexuality.

**Quality of Life**

Participants reported their overall health and quality of life using a Likert Scale rating of 1 (very poor) to 5 (excellent).

*Mental Healthcare Perceptions.* Participant perceived helpfulness of psychotherapy was assessed by the item, “How helpful on average, do you think therapy or counseling is, when provided competently for people your age who are experiencing mental health concerns?” Perceptions were captured using a Likert Scale of 0 (not helpful) to 3 (very helpful). This item is a variation of a question used in the Healthy Minds study (2019) in which Tran (2020) examined the racial/ethnic variations with stigma and service utilization of SAs. In addition to mental healthcare perceptions, participants were asked to indicate their willingness to access healthcare: “If I needed help for my mental/emotional health, I would seek help” with participants indicating level of agreement using a Likert Scale of 0 (strongly disagree) to 5 (strongly agree). Knowledge of mental healthcare access was assessed using participant indication of agreement with the following statement “if I needed to seek professional help for my mental/emotional health, I would know where to access resources from my school” using a 6-point Likert Scale of 0 (strongly disagree) to 5 (strongly agree). Willingness to access healthcare and knowledge of access were combined into a single variable identifying SA support service access perception.
Mental Health Stigma

Stigma was assessed using items from the Mental Health Stigma Scale (Eisenburg et al., 2009) which addressed both perceived public stigma and personal stigma as identified by Tran (2020). Perceived public stigma was assessed using the item “Most people think less of a person who has received mental health treatment”. Indication of personal stigma was identified by level of agreement with “I would think less of a person who has received mental health treatment”. Though not included in the Mental Health Stigma Scale, self-stigma was also assessed using the adapted personal stigma item “I would think less of myself if I received mental health treatment”. Participants indicated their agreement with each statement using a Likert Scale of 0 (strongly disagree) to 5 (strongly agree). The three statements addressing SA stigma were combined to create a single variable totaling each Likert Scale score into one measure.

SA Injury

Student-athlete injury was assessed using a dichotomous response to the following questions: “are you currently injured?” and “have you experienced a significant injury that has caused you to miss practice and/or games?” Both questions are adaptations from Li et al.’s (2021) research assessing the risk and protective factors for Generalized Anxiety Disorder (GAD) with a history of injury being a risk of GAD.

Current Mental Health Therapy Access and Utilization

Participants provided self-report of their mental health utilization by answering “are you currently receiving counseling/therapy?” and “have you received counseling/therapy/mental health/mental performance/mental health literacy/sports psych support?” both answered dichotomously with the latter providing a follow up for participants to identify the type of support they have received (Tran, 2020; Healthy Minds Study, 2023).
**Statistical Analysis**

All data was analyzed using SPSS. Data was screened for outliers and missingness and examined for fulfillment of test assumptions. For research questions one a two-way multivariate analysis of variance (MANOVA) test was conducted to examine differences in the independent variables of NCAA divisions (i.e., D-I, II, or III) and injury status (i.e., currently injured, not injured, previously injured). Four dependent variables were studied: mental health symptoms (e.g., depression and anxiety), perceived helpfulness of services, perceived knowledge of and willingness to access mental health services. Post hoc testing was completed to further analyze variables separately.

Research questions two and three focused on SA marginalization status (i.e., race, gender, sexuality). Question two was answered using a two-way MANOVA to examine differences among the same four outcome variables across race and gender. Research question three was answered using a one-way MANOVA to examine differences among the same four outcome variables across SA sexuality.

**Power Analysis**

For questions 1 and 2, a power analysis was conducted by the researcher using G*Power statistical analysis software (Faul et al., 2009) to indicate the necessary sample size with two predictors and a medium effect size (.25), power of .80, and alpha of .05. The recommendation was at least 135 participants were required for analysis. With respect to question 3, the power analysis indicated the necessary sample size for three predictors and a medium effect size (.25), power of .80, and alpha of .05 to be a minimum of 105 participants. The power analysis utilized was a priori as no pilot study data was available to conduct the power analysis.
Chapter Four: Results

This chapter outlines the findings of the data analysis plan identified in chapter three, which examined potential differences in SA mental health concerns across NCAA divisions (i.e., D-I, II, or III), injury status (i.e., currently injured, not injured, previously injured), and marginalization status (i.e., race/ethnicity, gender, and sexuality) with respect to mental health symptoms (e.g., depression and anxiety), mental health stigma, perception, and access to mental health. In accordance with the data analysis plan in chapter three, the researcher ran correlations followed by a two-way MANOVA on NCAA division and injury status, a two-way MANOVA on race and gender, and a one-way MANOVA on sexuality. A total of 235 total responses were collected with 137 participants completing all questions, and 161 completing all items of the instrument; however, participants who chose prefer to not respond to demographic items about race, gender, or sexuality) and outliers were excluded from the analysis resulting in 145 total participants.

Procedure and Participants

The researcher collected demographic information to detail the research sample (see table 1). The sample was predominantly women (72%), with 99 participants identifying as women and 37 identifying as men. One SA who identified as non-binary and one SA who identified as a woman who is transgender were excluded from the sample. BIPOC SAs represented almost 33% of the sample, with most respondents identifying as White (n = 90; 67%; see Table 1). Student-athlete respondent sexuality was predominantly Straight (82%) with Queer-Spectrum SAs (n = 23) representing 17% of the sample. No SA who identified as male identified as gay, though two did identify as bisexual. With respect to injury status, 55% of SAs have not experienced an injury, 15% are currently injured (n = 22), and 28% were previously injured. Student-athletes
experiencing both a current and previous injury were identified solely as currently injured. The mean age of the sample was 20, with participant age ranging from 18 to 28. Participant athletic eligibility status was represented within the sample with the majority of SAs being in their Sophomore (n = 43; 29%) or Junior (n = 39; 26%) year. Participants were primarily from NCAA Division I institutions (n = 76; 55%) and from the Southern (n = 52; 35%) or New England (n = 47; 32%) region.

Table 1
Demographics for Full Sample: NCAA Division, injury status, race, gender, and sexuality

<table>
<thead>
<tr>
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<th>n</th>
<th>%</th>
<th>N</th>
<th>N%</th>
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<tr>
<td>Division I</td>
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<td>Division II</td>
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<tr>
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<td>Currently injured</td>
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<td>Previously injured</td>
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<tr>
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<tr>
<td>BIPOC</td>
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</table>

Quality of Life

Student-athletes were asked to report their overall health and quality of life. For all participants, five percent of SAs identified their overall health and quality of life as poor. In aiming to understand SAs holistically, the researcher also surveyed SAs about their overall relationship with their coach and the overall team environment. Though most SAs report an
average to excellent health and life, 18% of SAs endorse a poor to very poor relationship with their coach and 11% categorize the overall team environment to also be poor to very poor. Most SAs surveyed somewhat to strongly agree that their coach is mindful about finding a balance between performance and personal wellness and openly talks about mental health. More SAs than not also endorse somewhat to strongly agreeing that their coach fosters a positive team culture that supports mental wellness and feel comfortable talking with their coach if they have problems. Student-athlete relationship with teammates was also of interest and most SAs somewhat to strongly agree that their teammates are mindful about balancing athletic performance and wellness, talk openly about mental health, and are willing to help if someone is experiencing mental health issues creating a culture that supports SA mental wellness. As stated previously, social stressors such as team environment can impact performance and SA well-being (Hwang & Choi, 2016; Hague et al., 2021; Saxe et al., 2022) necessitating further understanding in how SAs experience mental health concerns. Composite scales were used for PHQ-ADS (PHQ-9 and GAD-7), perceived access (willingness to and knowledge of access) and stigma (perceived public stigma, personal stigma, self-stigma).

**PHQ-ADS**

The PHQ-ADS was scored using the combined PHQ-9 and GAD-7 scale scores as outlined by Kroenke et al. (2016). Due to the data set violating the assumption of normality, median and mean scores were both reported. The median score for both the PHQ-9 and GAD-7 was 6. On each scale, a higher number indicates greater depression and anxiety symptomology. The PHQ-ADS median score was 13 for all respondents out of a total possible score of 48 with approximately 80% of SAs endorsing minimum to mild symptomology (see Table 2).
Mental Healthcare Perceptions

Student-athlete perception of mental health services had a median of two, identifying that most SAs feel that competently provided services are somewhat helpful. Perceived access was assessed by combining SA knowledge and willingness to access support services. Higher scores on each scale indicate increased likelihood of SAs knowing where to go and being willing to access services. The median overall access perception score was 7 with SAs being more knowledgeable (median=4.000) than willing (median=3.000) to use support services (see Table 2).

Table 2

Descriptive Statistics for Full Sample

<table>
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</tr>
<tr>
<td>Perceived helpfulness</td>
<td>145</td>
<td>3</td>
<td>0.00</td>
<td>3.00</td>
<td>2.00</td>
<td>2.11</td>
<td>.851</td>
</tr>
<tr>
<td>Perceived access</td>
<td>145</td>
<td>10</td>
<td>1.00</td>
<td>9.00</td>
<td>7.00</td>
<td>6.90</td>
<td>2.21</td>
</tr>
<tr>
<td>Willingness</td>
<td>145</td>
<td>5</td>
<td>0.00</td>
<td>5.00</td>
<td>3.00</td>
<td>3.29</td>
<td>1.25</td>
</tr>
<tr>
<td>Knowledge</td>
<td>145</td>
<td>5</td>
<td>0.00</td>
<td>5.00</td>
<td>4.00</td>
<td>3.61</td>
<td>1.37</td>
</tr>
<tr>
<td>Stigma</td>
<td>145</td>
<td>12</td>
<td>0.00</td>
<td>12.00</td>
<td>3.00</td>
<td>3.62</td>
<td>2.78</td>
</tr>
<tr>
<td>PPS</td>
<td>145</td>
<td>5</td>
<td>0.00</td>
<td>5.00</td>
<td>2.00</td>
<td>1.90</td>
<td>1.20</td>
</tr>
<tr>
<td>PS</td>
<td>145</td>
<td>5</td>
<td>0.00</td>
<td>5.00</td>
<td>0.00</td>
<td>0.46</td>
<td>.882</td>
</tr>
<tr>
<td>SS</td>
<td>145</td>
<td>4</td>
<td>0.00</td>
<td>4.00</td>
<td>1.00</td>
<td>1.26</td>
<td>1.306</td>
</tr>
</tbody>
</table>

Mental Healthcare Perceptions

Student-athlete perception of mental health services had a median of two, identifying that most SAs feel that competently provided services are somewhat helpful. Perceived access was assessed by combining SA knowledge and willingness to access support services. Higher scores on each scale indicate increased likelihood of SAs knowing where to go and being willing to
access services. The median overall access perception score was 7 with SAs being more knowledgeable (median=4.000) than willing (median=3.000) to use support services (see Table 2).

**Mental Health Stigma**

The overall stigma score was comprised of three items assessing perceived public stigma (PPS), personal stigma (PS), and self-stigma (SS) with higher numbers indicating higher stigma. The median overall score is 3 demonstrating some SA endorsement of stigma. Perceived public stigma (M = 2) is higher than both PS (M = 0) and SS (M = 1) highlighting that SAs recognize that stigma does exist; however, they may not personally hold these beliefs towards others, but may be more likely to hold them towards themselves (Eisenberg et al., 2009; see Table 2).

**Correlations**

The researcher calculated correlations between the variables of interest prior to conducting the multivariate analysis with all variables of interest being correlated. PHQ-ADS scores were positively correlated to stigma (0.093) in such that higher PHQ-ADS scores correlated with higher beliefs in stigma; however, symptomology was negatively correlated to perceived access (-0.127) and helpfulness (-0.126) with lower scores on the PHQ-ADS scale being correlated to increased perception of both access and helpfulness. Stigma was significantly negatively correlated with both perceived helpfulness (-0.214) and access (-0.298) in such that higher stigma scores correlate with lower perceived helpfulness and access. Support service usage was significantly correlated with both perceived access (0.360) and stigma (-0.236). The moderate correlation between perceived helpfulness and perceived access (0.419) was both significant and the strongest of the variables of interest (see Table 3).
Table 3

Spearman’s Correlation Coefficients

<table>
<thead>
<tr>
<th></th>
<th>Spearman's rho</th>
<th>p</th>
<th>Lower 95% CI</th>
<th>Upper 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHQ_ADS_Total - Perc_Helpflns</td>
<td>-0.126</td>
<td>0.125</td>
<td>-0.281</td>
<td>0.035</td>
</tr>
<tr>
<td>PHQ_ADS_Total - Perc_Access</td>
<td>-0.127</td>
<td>0.124</td>
<td>-0.282</td>
<td>0.035</td>
</tr>
<tr>
<td>PHQ_ADS_Total - Stigma_Total</td>
<td>0.093</td>
<td>0.258</td>
<td>-0.069</td>
<td>0.250</td>
</tr>
<tr>
<td>PHQ_ADS_Total - Sppt_Srvc_Use</td>
<td>0.161</td>
<td>0.054</td>
<td>-0.003</td>
<td>0.317</td>
</tr>
<tr>
<td>Perc_Helpflns - Perc_Access</td>
<td>0.419***</td>
<td>&lt;.001</td>
<td>0.277</td>
<td>0.543</td>
</tr>
<tr>
<td>Perc_Helpflns - Stigma_Total</td>
<td>-0.214**</td>
<td>0.009</td>
<td>-0.363</td>
<td>-0.055</td>
</tr>
<tr>
<td>Perc_Helpflns - Sppt_Srvc_Use</td>
<td>0.064</td>
<td>0.447</td>
<td>-0.101</td>
<td>0.226</td>
</tr>
<tr>
<td>Perc_Access - Stigma_Total</td>
<td>-0.298***</td>
<td>&lt;.001</td>
<td>-0.438</td>
<td>-0.144</td>
</tr>
<tr>
<td>Perc_Access - Sppt_Srvc_Use</td>
<td>0.360***</td>
<td>&lt;.001</td>
<td>0.208</td>
<td>0.495</td>
</tr>
<tr>
<td>Stigma_Total - Sppt_Srvc_Use</td>
<td>-0.236**</td>
<td>0.005</td>
<td>-0.385</td>
<td>-0.075</td>
</tr>
</tbody>
</table>

* p < .05, ** p < .01, *** p < .001

MANOVAs

As previously discussed, the research questions had multiple independent variables (i.e., NCAA division, injury status, race, gender, sexuality) and four dependent variables (i.e., PHQ-ADS, perceived helpfulness, perceived access, and stigma). Use of service was removed as a dependent variable due to the number of observations being insufficient to run the analysis. Because of multiple dependent variables, a MANOVA was chosen for data analysis. Prior to running the analysis, the sample size and assumptions were checked before proceeding, including outliers, normality, linearity, and homogeneity of variance-covariance (Pallant, 2016).

According to Pallant (2016), when conducting a MANOVA, the sample size should have more cases in each cell than dependent variables. The current study had four dependent variables requiring a minimum of five cases for each cell. The sample size did require the initial data analysis plan to be adjusted as a result of not having enough participants in each cell to conduct a three-way MANOVA. The analysis for NCAA division and injury status remained the same (two-way MANOVA); however, the three-way MANOVA initially intended to inspect...
differences across race, gender, and sexuality was adjusted to be analyzed as a two-way MANOVA across race and gender and a one-way MANOVA across sexuality.

To check the assumption of multivariate normality both the Shapiro-Wilk and Kolmogorov test was significant indicating that normality had been violated for each research question; however, MANOVA is reasonably robust to modest violations of normality with samples larger than 50 (Pallant, 2016). The Q-Q plots and histograms included in Appendix C show that the data for PHQ-ADS appear to be normal, though some outliers do exist, the Mahalonobis distance only exceeded the critical value for one participant with three outliers who were removed from the analysis.

Linearity was the next assumption to be assessed using scatterplots. When visually inspecting the scatterplots, two vertical lines are present (see Appendix C); however, this is a possibility with the use of categorical independent variables.

The Box M test of for Homogeneity of Covariance Matrices was used to assess whether variances are equal. As seen in Table 4, the Box M Test for all three questions did not have a significant value indicating that the homogeneity of variance was not violated and covariances were equal.

Table 4

<table>
<thead>
<tr>
<th>Effect</th>
<th>Box’s M</th>
<th>F</th>
<th>df1</th>
<th>df2</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Div*Inj</td>
<td>116.193</td>
<td>1.143</td>
<td>80</td>
<td>2898.72</td>
<td>.183</td>
</tr>
<tr>
<td>Race*Gender</td>
<td>43.816</td>
<td>1.345</td>
<td>30</td>
<td>12417.48</td>
<td>.10</td>
</tr>
<tr>
<td>Sexuality</td>
<td>8.19</td>
<td>0.76</td>
<td>10</td>
<td>6889.87</td>
<td>.665</td>
</tr>
</tbody>
</table>

* p <0.05
**Research Question One**

For research question one, the researcher examined the between subject effects of NCAA division and injury status on depression/anxiety symptoms, perceived helpfulness, perceived access, and stigma using a two-way MANOVA. Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity with no serious violations noted. As shown in Table 5, there was no statistically significant difference on the combined dependent variables in NCAA Division \( (F(8, 250) = .705, \ p = .687) \), injury status \( (F(8, 250) = 1.37, \ p = .208) \), or the interaction of the two \( (F(16, 508) = .621, \ p = .868) \).

**Table 5**

<table>
<thead>
<tr>
<th>Effect</th>
<th>Value</th>
<th>F</th>
<th>Hypothesis df</th>
<th>Error df</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Division</td>
<td>.044</td>
<td>.705</td>
<td>8</td>
<td>250</td>
<td>.687</td>
<td>.022</td>
</tr>
<tr>
<td>Injury Status</td>
<td>.084</td>
<td>1.374</td>
<td>8</td>
<td>250</td>
<td>.208</td>
<td>.042</td>
</tr>
<tr>
<td>Div*inj</td>
<td>.077</td>
<td>.621</td>
<td>16</td>
<td>508</td>
<td>.868</td>
<td>.019</td>
</tr>
</tbody>
</table>

**Research Question Two**

The researcher conducted a separate two-way MANOVA for question two to investigate differences across gender and race on the variables of interest (see Table 6). Assumption testing was conducted to check normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity with no serious violations noted. There was a statistically significant difference between gender on the combined dependent variables, \( F(4, 127) = 6.212, \ p < .001; \) partial eta squared = .164. The results for the dependent variables were considered separately and all four dependent variables reached statistical significance at the
alpha level .05: depression/anxiety symptoms ($F (1, 132) = 9.306, p = .003$), perceived 
helpfulness ($F (1, 132) = 3.585, p = .024$), perceived access $F (1, 132) = 8.734, p = .004$), and 
stigma ($F (1, 132) = 5.556, p = .020$). An inspection of the mean scores indicated that women ($M = 13.72$) endorsed higher levels of depression/anxiety symptoms than men ($M = 9.91$).

**Table 6**

*Multivariate Tests-Pillai Trace Race*Gender

<table>
<thead>
<tr>
<th>Effect</th>
<th>Value</th>
<th>F</th>
<th>Hypothesis df</th>
<th>Error df</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race</td>
<td>.016</td>
<td>.510</td>
<td>4</td>
<td>127</td>
<td>.728</td>
<td>.016</td>
</tr>
<tr>
<td>Gender</td>
<td>.164</td>
<td>6.212</td>
<td>4</td>
<td>127</td>
<td>&lt;.001***</td>
<td>.164</td>
</tr>
<tr>
<td>Race*Gender</td>
<td>.036</td>
<td>1.189</td>
<td>4</td>
<td>127</td>
<td>.319</td>
<td>.036</td>
</tr>
</tbody>
</table>

*** p < 0.001

Further analysis was conducted for the statistical significance found on the composite scores for the PHQ-ADS, perceived access, and stigma (see Table 7). As suggested by Pallant (2016), post hoc testing was done using a Bonferroni-type adjustment to provide a more stringent alpha level to maintain reasonable levels to control the overall probability of a Type I error. The adjusted Bonferroni alpha level of .004 was used to account for the multiple comparisons conducted throughout the analysis. Post hoc analysis indicated that women participants scored significantly higher than men on both the PHQ-9 (+2.016) and GAD-7 (+2.414). Between-subjects effects for gender with respect to perceived access were statistically significant where women ($M = 7.278$) endorsed higher perceived access than men ($M = 6.081$). Further analysis of perceived access revealed that a statistically significant difference was present for both access willingness ($p = .007$) and access knowledge ($p = .031$; see Table 7) at the alpha level of .05, but not at the Bonferroni adjusted level of .004. More women participants (53%) endorsed agreement with being willing to access support services than men (30%). With respect to stigma, men ($M = 4.324$) endorsed higher levels of stigma than women ($M = 3.144$) though statistically
nonsignificant at the Bonferroni adjusted value. Post hoc analysis of individual levels of stigma found statistical nonsignificant differences for perceived public stigma \( F (1, 132) = 1.322, p = .252 \), personal stigma \( F (1, 132) = 5.141, p = .025 \) and self-stigma \( F (1, 132) = 5.142, p = .025 \) at the adjusted Bonferroni level of .004.

Table 7

Test of Between-Subjects Effects-Gender

<table>
<thead>
<tr>
<th>Source</th>
<th>Dependent Variable</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>PHQ-ADS</td>
<td>525.607</td>
<td>1</td>
<td>525.67</td>
<td>9.306</td>
<td>.003***</td>
</tr>
<tr>
<td></td>
<td>PHQ</td>
<td>108.812</td>
<td>1</td>
<td>108.812</td>
<td>6.756</td>
<td>.010*</td>
</tr>
<tr>
<td></td>
<td>GAD</td>
<td>156.120</td>
<td>1</td>
<td>156.120</td>
<td>8.405</td>
<td>.004**</td>
</tr>
<tr>
<td></td>
<td>Perceived Helpfulness</td>
<td>3.585</td>
<td>1</td>
<td>3.585</td>
<td>5.250</td>
<td>.024*</td>
</tr>
<tr>
<td></td>
<td>Perceived Access</td>
<td>38.393</td>
<td>1</td>
<td>38.393</td>
<td>8.734</td>
<td>.004**</td>
</tr>
<tr>
<td></td>
<td>Access knowledge</td>
<td>8.119</td>
<td>1</td>
<td>8.119</td>
<td>4.728</td>
<td>.031*</td>
</tr>
<tr>
<td></td>
<td>Access willingness</td>
<td>11.201</td>
<td>1</td>
<td>11.201</td>
<td>7.573</td>
<td>.007**</td>
</tr>
<tr>
<td></td>
<td>Stigma</td>
<td>37.293</td>
<td>1</td>
<td>37.293</td>
<td>5.556</td>
<td>.020*</td>
</tr>
<tr>
<td></td>
<td>PPS</td>
<td>2.210</td>
<td>1</td>
<td>2.210</td>
<td>1.322</td>
<td>.252</td>
</tr>
<tr>
<td></td>
<td>PS</td>
<td>3.396</td>
<td>1</td>
<td>3.396</td>
<td>5.141</td>
<td>.025*</td>
</tr>
<tr>
<td></td>
<td>SS</td>
<td>7.713</td>
<td>1</td>
<td>7.713</td>
<td>5.142</td>
<td>.025*</td>
</tr>
</tbody>
</table>

* p <0.05, ** p <0.01, *** p < 0.004

Research Question Three

Research question three was analyzed using a one-way MANOVA to investigate differences in the variables of interest based on SA sexuality. There was a statistically significant difference \( F (4, 129) = 2.84, p = .028 \); see Table 8) between Queer-spectrum SAs and Straight SAs at the alpha level of \( p = .05 \) though not at the adjusted Bonferroni level. Queer-spectrum SAs (\( M = 17.565 \)) had statistically significant \( F (1, 135) = 10.27, p = .002 \) higher PHQ-ADS scores than straight SAs (\( M = 17.565, SD = 1.557 \)). Further analysis was conducted to identify if a
statistically significant difference occurred on either or both the PHQ-9 and GAD-7 scales. A statistically significant difference was found on both the scales at the alpha level of .05 with

**Table 8**

*Multivariate Tests-Pillai Trace Sexuality*

<table>
<thead>
<tr>
<th>Effect</th>
<th>Value</th>
<th>F</th>
<th>Hypothesis df</th>
<th>Error df</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexuality</td>
<td>.081</td>
<td>2.825</td>
<td>4</td>
<td>129</td>
<td>.028*</td>
<td>.081</td>
</tr>
</tbody>
</table>

* p <0.05

Queer-spectrum SAs endorsing more depression (+2.989) and anxiety symptomology than straight SAs (+2.729) though only depression symptoms were statistically significant at the adjusted Bonferroni level. No other statistically significant differences were found with respect to sexuality with both Queer-Spectrum and Straight SAs endorsing similar perceptions with respect to helpfulness of and access to support services as well as stigma.

**Table 9**

*Test of Between-Subjects Effects-Sexuality*

<table>
<thead>
<tr>
<th>Source</th>
<th>Dependent Variable</th>
<th>Type III Sum of Squares df</th>
<th>Mean Square df</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexuality</td>
<td>PHQ-ADS</td>
<td>623.004</td>
<td>1</td>
<td>623.004</td>
<td>11.176</td>
</tr>
<tr>
<td></td>
<td>PHQ</td>
<td>170.263</td>
<td>1</td>
<td>170.263</td>
<td>10.886</td>
</tr>
<tr>
<td></td>
<td>GAD</td>
<td>141.885</td>
<td>1</td>
<td>141.885</td>
<td>7.595</td>
</tr>
<tr>
<td></td>
<td>Perceived Helpfulness</td>
<td>.135</td>
<td>1</td>
<td>.135</td>
<td>.191</td>
</tr>
<tr>
<td></td>
<td>Perceived Access</td>
<td>3.192</td>
<td>1</td>
<td>3.192</td>
<td>.685</td>
</tr>
<tr>
<td></td>
<td>Stigma</td>
<td>2.009</td>
<td>1</td>
<td>2.009</td>
<td>.288</td>
</tr>
</tbody>
</table>

* p <0.05, ** p <0.01, *** p < 0.001

Three multivariate analyses of variances were used to identify if any differences occur on four dependent variables of interest: PHQ-ADS, perceived helpfulness, perceived access, and stigma. When examining differences across NCAA division, injury status and the interaction of
the two, no statistically significant differences were found. Despite no statistically significant
difference across division, injury status and race, women (M = 13.72) were found to endorse
more depression and anxiety symptomology than men (M = 9.91) and to perceive increased
willingness to access support services with more women (M = 3.485) endorsing agreement with
being willing to access services. Similar to women, the difference between Queer-spectrum SAs
and Straight SAs was statistically significant with SAs who identify as Queer-spectrum
endorsing more depression (M = 9.043) and anxiety (M = 8.522) symptomology than their
Straight SA peers (M= 6.054; 5.793, respectively).

Chapter Five: Discussion

This research study was conducted to evaluate and better understand student-athlete (SA)
mental health. Highlighting the interconnectedness of biological, psychological, and social
factors, the researcher used Engel’s biopsychosocial framework to discuss how SA mental health
may impact multiple life domains including academic, athletic, and social performance.
Specifically, the focus was to identify if there are differences in SA depression and anxiety
symptomology as well as stigma and perceived helpfulness of and access to support services.
The research evaluated potential SA differences across NCAA divisions and injury status, race,
gender, and sexuality to identify if SAs experience mental health concerns differently. In
understanding that no SA demographic is a monolith, resources and services should be
intentionally tailored to specifically address the needs of all SAs, especially those who are
marginalized.

Interpretations

NCAA Divisions
The current sample was overwhelmingly comprised of D-I SAs despite the 2022-2023 NCAA Sports Sponsorship and Participation Rates Report (2023) showing that of the more than 530,000 NCAA SAs 36, 25, and 39% of them participate in D-I, II, and III athletics, respectively. Only the D-II sample closely aligned with the 22-23 D-II SA participation rate of 25% with 21% of the current sample participating in D-II athletics. Although the over 200,000 SAs who participate in D-III athletics make up the largest division of the NCAA at 39%, D-III SAs are grossly underrepresented in the current sample at 19% while D-I SAs are overrepresented at 52%. The reasons for these current discrepancies are unknown though research specific to D-II and D-III SA is lacking significantly in comparison to D-I SAs.

One likely possibility for the dearth of research amongst NCAA divisions could be that D-I institutions generally have larger budgets than their D-II and D-III counterparts (NCAA, 2021c). Increased budgets may not just play a role in divisional research, but also in the type and rate of scholarships awarded to SAs. For the current sample, 82% of SAs have a scholarship of some type whether full or partial, athletic or academic. This rate is more than 20 percentage points higher than both D-I and D-II SAs athletic aid percentages of 57 and 60% respectively and slightly higher than the 80% of D-III SAs receiving non-athletics aid (NCAA, 2016). Division II SAs for the current sample had the highest rate of SAs endorse having a scholarship of some kind with almost 97 percent. Division I SAs had the second highest rate with nearly 90% of SAs being on scholarship followed by Division III with more than 75% of SAs endorsing some type of aid. Both the D-I and D-II rates for the current sample were above the NCAA identified figures while D-III SAs aid rates were five percentage points below.

**Division I.** Division I schools generally have the most athletic scholarships due to larger athletic budgets (NCAA, 2021c) and it would be expected that D-I SAs have the highest rate of
athletic scholarships offered; however, the current study did not reflect such. Despite the D-I priority of amateurism, the current sample had an almost ten percent discrepancy with nearly 69% of D-II SAs on athletic scholarship compared to 60% of D-I SAs sampled. Division II SAs in the current sample had a higher rate of SAs on athletic scholarship than D-I SAs but it is important to assess the nature of the scholarships being considered. The increased rate of D-II SA scholarships could be explained by the type of scholarships SAs in the current sample have earned. In fact, though SAs in all divisions endorsed currently being on scholarship, 29% of D-I SAs in the current sample had a full scholarship of some kind compared to 22 and three percent of SAs on full scholarship in D-II and D-III, respectively. When considering biopsychosocial stressors, earning a scholarship may relieve some of the financial concerns that collegiate SAs experience; however, it may also negatively impact their mental health due to increased expectations and pressure to perform (Brown et al., 2021) with SAs in the current sample endorsing similar levels of symptomology regardless of scholarship status.

**Division II.** Division II athletics prioritizes balance in an effort for SAs to reach their highest potential to succeed after college. It is not surprising that the smallest gap between athletic and academic scholarship recipients for SAs was with D-II SAs with more SAs in the current sample endorsing athletic scholarships (69%) than academic scholarships (56%) though more scholarships for D-II SAs were awarded in partial (38%) than full (22%). A distinguishing feature of D-II institutions (NCAA 2021e), partial athletic scholarships allow more SAs to be awarded some amount of financial aid as opposed to fewer being awarded full scholarships though award amounts may be significantly less depending on the institution. Understanding the rising costs of post-secondary education, the need for D-II SAs to perform as expected to maintain one or more scholarships could contribute to mental health concerns due to heightened
stress and anxiety (Brown et al., 2021). Division II SAs in the current sample had the highest mean and median score for depression and anxiety symptomology with D-III SAs endorsing the fewest symptoms.

**Division III.** The reader may recall as previously mentioned in the literature that D-III institutions do not provide athletic scholarships, resulting in the only D-III SA in the current sample to receive a full scholarship did so for their academic merit. Further drawing attention to the prioritization of SA comprehensive learning in D-III institutions 62% were the recipients of partial academic scholarships compared to D-II and D-I schools at 56% and 35%, respectively. When considering SA financial opportunities to cover SA cost of living, future research should factor in SA Name, Image, and Likeness (NIL) deals which legalized SA monetization. Like scholarship, SA monetization through NIL could simultaneously provide economic relief and exacerbate mental health concerns as SAs navigate the added stress and pressure to maintain an image and brand (Grubic et al., 2021) further highlighting the interconnectedness of the biopsychosocial stressors SAs experience. The current study did have a sample of SAs who endorsed currently having an NIL deal, as expected with the previously mentioned commitment to amateurism D-I SAs had a higher likelihood of having an NIL deal with almost 17% of SAs endorsing such. Less expected with D-III prioritizing learning and minimizing conflict between athletics and academics was that 10% of D-III SAs endorsed having an NIL deal compared to just six percent of D-II SAs. When considering the National Center for Education Statistics reported in 2021-22 that average tuition and fees for first-time undergraduate students residing on campus at a four-year college or university were $26,000 at public institutions, $32,900 at private for-profit institutions, and $55,800 the need for aid is evident as financial stressors may play a role as a social stressor for SAs.
**Biopsychosocial Stressors**

Differing levels of scholarship and rates of SA NIL deals may not cover all SA academic fees requiring SAs to find additional ways to supplement their pay; however, when we call attention to the fact that SAs already spend almost the equivalent of two full time jobs, a minimum of 68 hours, on athletic and academic activities each week (NCAA, 2023b) this social stressor may compound biological and psychological stressors such as mental exhaustion and mental wellness across all divisions. Though NCAA rates of SA mental health symptoms have decreased from the initial NCAA Well-Being Survey in March of 2020 following the Covid-19 shut down, the most recent Student-Athlete Health and Wellness Study (NCAA Research, 2023) reports that mental health problems (e.g., anxiety, feeling sad) for SA remains elevated as seen in the current study with the sample mean falling with the mild symptomology range.

As mentioned earlier, the budgets of colleges and institutions across and within NCAA divisions vary and research on SAs has largely been conducted with SAs from D-I institutions with D-II and D-III SAs being largely absent from the literature (Stokowski et al., 2022). In fact, outside of the wellness and wellbeing studies conducted by the NCAA, the page devoted to Division II Research (NCAA Research, 2024) only has three hyperlinks available under Division II Research Links—one being the 2023-24 *Division II Facts and Figures* document which details D-II institution type, enrollment, graduation rates, championships and more with no mention of mental health in the document (NCAA Division II Facts and Figures, 2023), another being a PDF presentation document from the 2011 FARA Annual Meeting and Symposium held by NCAA Research detailing the NCAA GOALS and SCORE studies which surveyed all NCAA levels rather than D-II solely, and the third a PDF document of the May 1995 NCAA Research Report detailing findings from the NCAA D II academic performance study conducted on 1986-
87 D-II freshman SAs. Though the 2010 SCORE focused directly on previous D-II SAs and validated the divisional commitment to balance, research focusing solely on D-II SAs is scant much like research on D-III schools (Stokowski et al., 2022) with most NCAA studies surveying SAs from all divisions collectively like the 2023 NCAA Student-Athlete Health and Wellness Study. Despite collective research across divisions, D-II and D-III institutions necessitate additional research like that of Stokowski and colleagues on D-III SA mental health and identity. Differing priorities, budgets, and subsequent resources do not allow generalizability across and sometimes within divisions; therefore, the SA experience varies. Without overtly calling attention to the interconnectedness of biopsychosocial stressors, recent NCAA research, like the current study, has provided some insight into the different biological, psychological, and social factors SAs may experience.

Addressing the biological stressor of SA mental health and wellbeing, participants in the current study had an overall median score of 13 on the PHQ-ADS a validated screening tool included in the *Mind, Body, Sport* (Brown, 2014) publication as a pre-participation physical exam screening tool option for psychological concerns including depression and anxiety. The sample median score of 13 falls into the mild range of mental health symptoms with approximately 60% of the overall sample endorsing mild to severe depression and anxiety symptomology. When considering moderate symptomology, which requires a minimum cut-off score of 20, almost 20% of the overall current sample endorsed moderate to severe depression and/or anxiety symptoms which falls between the previous 15.6 to 33.2% of rates of depression found by Cox et al. (2017) and Wolanin and colleagues (2016) respectively as well as below the approximate one-third of SAs previously found to have experienced moderate to severe levels of anxiety (Li et al., 2017). It is important to highlight that almost 99% of SAs in the current study
endorsed experiencing at least minimal symptoms (i.e., score of one or more). In fact, only two participants had a total PHQ-ADS score of zero endorsing no depression or anxiety symptoms over the past two weeks at the time of survey. Having almost all participants in the current sample endorse at least one mental health concern, continues to highlight the need to better understand SA mental health collectively, but more importantly by division.

In recognizing that NCAA divisions were created to level the playing field (NCAA, 2016b), it was important to identify if any differences existed in SA mental health of the current sample across NCAA divisions and if these differences were statistically significant. Multivariate analysis for the present study found no significant differences in SA mental health concerns though the median score for each division did differ. In fact, D-II SAs participating in the current research had the highest median score at 16 followed by D-I SAs (12.5) and D-III with the lowest divisional median of 10. Recalling that over 56% of D-II SAs in the current sample have academic and/or athletic scholarships with increased likelihood of it being partial rather than full, it may not be surprising that D-II SAs endorsed higher mental health concerns especially when you consider 28% of D-II SAs endorsed financial worries as a factor negatively impacting their mental health the month prior to the administration of the SA Health and Wellness Study (NCAA Research, 2023) compared to 23 and 22% of D-I and D-II SAs, respectively.

Though previous literature posits that D-I SAs may have increased symptomology due to increased pressure and expectation to perform at a high level (Brown et al., 2021), the current sample median does not reflect such with D-I participant symptomology falling below that of D-II SAs. Budget variances could account for divisional differences in mental wellness as resources available to D-I SAs may mediate SA mental health as nearly 71% of D-I SAs in the current sample endorsed agreement with perceived access to services and knowing where to go, if
necessary, compared to nearly 60% of D-II SAs currently sampled and less than 50% of D-III SAs sampled. Though the rates of SA perceived access differ by division in the current sample, the differences were not found to be statistically significant aligning with previous research conducted by Way et al. (2020) and the Student-Athlete Well-Being Study (NCAA, 2022) finding that SAs across divisions perceive access to services for mental health concerns similarly. The increased perceived access by D-I SAs may have contributed to a third of the current D-I sample endorsing current support service usage and almost 50% endorsing past usage. Division III SAs of the present sample endorsed the lowest rate of support service usage with less than 21% of D-III SAs currently using services and less than 40% addressing previous mental health concerns with past service usage while the D-II SAs endorsed a current support rate of almost 30% falling almost directly between reported D-I and D-II SA current usage; however, D-II SAs had the highest rate of past support service usage at above 56%. Student-athletes across all divisions endorsed the use of different support service modalities. Division I SAs endorsed the highest rate of performance support, athletic department counseling, and sports psychology services as these services are likely more readily available due to larger athletic budgets. On the contrary, D-II and III SAs in the current sample were more likely to endorse the use services such as mental health counselors, medication management, and campus counselor centers, resources that may be campus or community based and not dependent on athletic budgets (Navarro et al., 2020). With the high profile that some D-I SAs may have, they may be less willing to access campus or community-based resources where they have an increased likelihood of being recognized and possibly stigmatized for receiving mental health treatment (López & Levy, 2013).
Though several SAs in the current sample endorsed current and past support service usage, SA service usage may be impacted by stigma which can be broken down into three forms as mentioned in the review of the literature: perceived public stigma (PPS; Corrigan, 2004), personal stigma (PS; Griffiths et al., 2004) and self-stigma (SS; Corrigan, 2004). As reported in the results section, SA rates of stigma across NCAA divisions for the present sample were found to not be statistically significant and the median score for each form of stigma was the same across all divisions except PPS. Division I SAs in the current study endorsed lower rates of PPS with slightly more SAs (51%) indicating disagreement with the statement “most people think less of a person who has received mental health treatment” (Eisenberg et al., 2009) compared to 34 and 48% for D-II and D III respectively. Though more D-I SAs did not endorse PPS, the median score for SA perceived public stigma across divisions was higher than personal stigma in the sample aligning with the findings of Eisenberg et al. (2009) that PPS was higher than personal stigma in college students. Ninety nine percent of SAs in the current sample across NCAA divisions endorsed experiencing at least minimal PHQ-ADS symptomology and differing stressors including stigma which may influence SA willingness to access support services. When mental health concerns are coupled with SA stigma additional biopsychosocial stressors such as financial worry about how to pay rising tuition costs and fees may impair academic and athletic performance which may place merit-based scholarship and SA health at risk. The researcher was unable to locate current research that explicitly reports SA mental health concerns by division highlighting the need for additional research into the topic across divisions though biopsychosocial stressors including injury may compound SA mental health.
Injury

Though the interaction of NCAA division and injury status on the dependent variables measured was not found to be statistically significant, differences based on SA injury status should still be discussed. The rates of SA injury by division in the current sample was similar across divisions with more than 50% of SAs in each division having no history of current or previous significant injury requiring them to miss practice and/or games. As mentioned in the review of the literature, it is estimated that approximately half of SAs have experienced at least one injury during their collegiate career (Hootman et al., 2007; Kerr et al., 2015; Rosenberg et al., 2023) aligning closely with the 44-47% of SAs in the current study who were currently or previously injured across the three divisions. It is important to mention that SAs in the current sample who endorsed both a current and previous injury were solely identified as currently injured (n = 21). Future research should identify if SAs who are both currently and previously injured experience mental health concerns differently than those who are only currently or previously injured.

Currently injured SAs make up the smallest injury status category with only 23 SAs of the sample (16%; keeping the above caveat in mind) followed by 41 previously injured SAs (29%), with 55% of SAs (n = 78) in the present study not experiencing an injury that caused them to miss any practices and/or games. Almost half of the current sample has experienced either a current or previous injury and it is important to consider the interconnectedness of biopsychosocial stressors involved in SA injury response. Emotional response to injury is to be expected, but injury itself may not increase SA mental health concerns (Putukian, 2016); however, SA response to injury may be impacted by type and severity of injury, length of time away from sport, the rehabilitation process, or other factors that may shift a normal emotional
response to injury to a persistent problematic emotional reaction including heightened emotional reactions triggering concerns such as disordered eating, depression, apathy, disengagement, and excessive anger (Putukian, 2016; Witt, 2015). Though previous literature identified substance use as a possible worsening symptom of SA injury, no SA in the current sample endorsed a diagnosis of substance use disorder; however, SAs did endorse previous diagnosis history of depression, anxiety, and eating disorders across injury status.

In the present study, no significant differences were found across injury status despite SAs who were currently or previously injured reporting a slightly higher PHQ-ADS median score (14) than SAs who have not experienced injury (12). Regardless of injury status, the median PHQ-ADS score in each category fell within the mild range. Considering the increased likelihood that SAs who have experienced a current or previous injury will navigate some kind of emotional injury response (Putukian, 2016; Sarac et al., 2018), it is not surprising that the two SAs in the current sample previously identified to have a PHQ-ADS score of zero were within the group of SAs who have not experienced a current or previous injury; however, it was surprising that PHQ-ADS scores for SAs who were not injured in the current sample included both the minimal and maximum range of 0 and 48 with SAs who were currently or previously injured having a maximum scale score of 37 and 44, respectively. Though the differences were found to not be statistically significant for SAs reporting mental health concerns in the present study, SAs endorsing PHQ-ADS scores that cross the threshold for minimal to severe depression and anxiety symptomology collectively were highest for previously injured SAs (75%) followed by those currently injured (70%) and SAs who have not experienced injury (60%).

Student-athletes who were previously injured not only had higher rates of minimum to severe overall PHQ-ADS scores, but also endorsed higher depression and anxiety symptomology...
when looking at the PHQ and GAD scales separately across injury status in alignment with previous research (Putukian, 2016) despite not approaching statical significance. It is not surprising that SAs not injured in the current sample have lower median scores than those currently and previously injured on both depression and anxiety scales with the median score for each scale being six. Currently injured SAs endorsed higher depression symptomology (M = 7.00) than those not injured but lower than previously injured SAs (M = 8.00). The median GAD scale score for currently injured SAs (M = 6.00) was the same as SAs not injured, but lower than SAs who were previously injured (M = 7.00). The increased median depression score for SAs who have experienced injury compared to non-injured SAs aligns with Brewer and Petrie’s (1995) retrospective study of D-I football players in which injured athletes reported higher levels of depression symptomology than those not experiencing injury. It is interesting that currently injured SAs in the current sample have higher median depression scores than SAs not injured, but the same median anxiety score to those who were not injured. Future research should investigate if SA symptomology differs as SAs navigate injury phases including preinjury (with pre-participation screenings; Brown, 2014), immediately after injury, postinjury, rehabilitation, and subsequent return to play (Putukian, 2016).

Student-athletes experiencing injury may be unable to participate in sport and team activities impacting social support as time away due to injury may cause SAs to disengage or alienate themselves (Putukian, 2016). In understanding that the team environment consists of the culture and climate established by the coach and enacted by the team (Baer & Frese, 2003), the interconnectedness of social stressors impacting SAs were investigated in the current study. Student-athlete perceptions of coach and teammates were used to investigate dynamics of the team environment including coaches and teammates being mindful of balance between
performance and personal wellness, openly talking about mental health, comfortability talking with coach, willingness to help a teammate experiencing mental health issues, and fostering a positive team culture that supports mental wellness across injury status. Surprisingly, regardless of injury status SAs within the present study responded similarly with the median score for every category except two being the same. Sixty percent or more of all SAs across injury status for the current sample endorsed their coach and teammates being mindful of prioritizing balance. This was supported by SAs in the current sample being more likely to perceive their coach to be willing to openly talk about mental health and foster a positive team culture that supports mental health though SAs with a previous injury were slightly less likely to feel comfortable talking with their coach if they have problems compared to those currently or not injured. With previous NCAA research (2023) indicating a decline in SAs who feel their coaches care about their well-being, SAs reported feeling more comfortable talking with their coach about physical health issues compared to mental health.

How SAs perceive their coach and team environment with respect to mental health may act as another social stressor that impacts SA and a barrier to SA help-seeking. In fact, for the current sample, SAs who were previously injured were less likely to feel that their teammates openly talk about mental health and create a culture that supports teammate mental wellness compared to SAs who were currently or not injured though 70% of all SAs strongly agree that their team was willing to help if someone is experiencing mental health issues. Student-athlete perception of team environment may largely impact the level of stigma experienced by SAs across injury status. In the present study, no significant differences were found for stigma across injury status though previously injured SAs endorsing increased levels of stigma compared to SA currently or not injured. Currently injured SAs in the current sample endorsed lower levels of
PPS than previously and not injured SAs this may be the result of 75% of currently SAs believing their team culture supports mental wellness. In alignment with previous research (Eisenberg, 2009), the current sample of SAs collectively endorsed higher levels of perceived public stigma compared to self-stigma and the lowest stigma rate of personal stigma and all may impact SA perceived helpfulness, access, and service usage.

Student-athletes in the current study regardless of injury status perceive support services to be helpful and more than 60% of SAs across injury status endorsed being somewhat knowledgeable of access to support services; however, SAs who are not injured endorse being more willing to access services. This was supported with over 53% of SAs with no injury endorsing current or past service use compared to nearly 40 and 50 of currently and previously injured SAs respectively. While investigating the mental health concerns across the interaction of the biological stressor of injury and the social factor of NCAA divisions observed differences did not approach statistical significance though it did provide additional insight into overall SA mental health.

**Marginalization Status**

As most SAs in the current study experienced at least minimal mental health symptoms, it is important to also call attention to SAs who are at greater risk for mental health concerns. Further insight into the experience of SA mental health was addressed through the lens of SA marginalization status based on race, gender identity, and sexuality. As with previous research (Brown et al., 2021), the current sample size required the researcher to collapse marginalized identities into dichotomous categories comparing underrepresented SAs in groupings as opposed to being able to focus on specific differing identities separately.
Race and Gender

As mentioned in the results chapter, a multivariate analysis was conducted to identify if statistically significant differences were found on the interaction of race and gender. Similar to RQ1, the differences based on the interaction of race and gender did not reach statistical significance and in alignment with the Black-White paradox of mental health in college students studied by Mushonga and Henneberger (2024), BIPOC SAs in the current sample experienced similar mental health symptomology to White SAs despite their likely increased exposure to societal stressors (Keyes, 2002; Louie et al., 2022). Though it would not be surprising for SAs of color to report poorer mental health than White SAs, the current sample did not reflect such (Mushonga & Henneberger, 2024); however, BIPOC SAs did report more variation in symptomology than White SAs with the maximum range for BIPOC SAs being 23 as opposed to a range of 18 for White SAs in alignment with the most recent NCAA study (2023).

Race

Median scores for BIPOC and White SAs across race were equal for PHQ-ADS scores with most SAs endorsing mild symptomology and good to excellent overall health and quality of life. Both BIPOC and White SAs endorse being knowledgeable of access to services and the belief that when competently provided support services were somewhat to very helpful; however, BIPOC SAs in the current sample were more likely to be willing to access services compared to White SAs. The current finding that BIPOC SAs were more willing to access services than their White counterparts may be explained by the stigma experienced by each group. Both BIPOC and White SAs in the current sample experience similar levels of PPS and personal stigma with personal stigma for the current sample being lower than PPS; however, BIPOC and White SAs did differ with respect to self-stigma with White SAs more likely to
endorse the experience of self-stigma. Previous research has found that Black SAs report views of mental health that were less stigmatizing that White SAs though they may be less likely to use services (Anglin et al., 2008; Mojtabai, 2007). Though not assessed on an individual level, BIPOC SAs in the study sample endorsed more past usage of support services than current usage with White SAs endorsing the converse.

Considering biopsychosocial stressors when discussing the team environment, BIPOC and White SAs perceive the environment similarly though not at a level of statistical significance, White SAs boast overall more positive views about the coach and team environment. In fact, the largest discrepancy between White and BIPOC SAs perception occurred with respect to the coach being mindful of a balance between performance and mental wellness. Though BIPOC SAs in the current study were as likely as White SAs to believe the coach talks openly about mental health concerns, the SA Well-Being Study (NCAA, 2022) found that Black SAs were less likely to endorse their coach taking mental health concerns seriously. Recognizing that the experience of BIPOC and White SAs are likely different, BIPOC SA experiences with coaches may differ based on the racial identity of the coach considering less than 10% of head coaches are Black men and less than 4% are Black women; however, not much is known with respect to the unique experiences BIPOC SAs may face across academic and athletic settings and how it may impact academic success and mental health (Courtney, 2022). Furthermore, future research should also consider the varying experiences BIPOC SAs may have when attending a PWI versus an HBCU (Courtney, 2022).

Gender

Though the interaction of race and gender was not found to be statistically significant, the differences in the current sample with respect to gender did reach statistical significance with
women being found to endorse increased symptomology in alignment with the Student-Athlete Health and Wellness Study conducted by NCAA Research (2023). The median score for participants on both men’s and women’s sport teams fell within the mild symptomology category; however, the median score for women was three points higher than men, despite women being as knowledgeable of support services, having higher perceived helpfulness, and being more willing to utilize services. Likely playing a role in their increased willingness to use support services both currently and in the past, women endorse experiencing slightly lower rates of stigma when perceived collectively. More specifically, women have a lower median score with respect to both perceived public and personal stigma though self-stigma was perceived similarly across dichotomous genders, and this aligns with the findings of Eisenberg et al. (2009). With women experiencing lower rates of stigma it was unexpected that the median differences describing coaches and the team environment shared the same sample median; however, further investigation highlighted that the differences observed by participants on men’s and women’s teams with respect to perceptions of coach and team environment differed by less than ten percentage points with the largest discrepancy occurring with respect to perception of the coach being mindful of balance between performance and mental wellness. Women in the current sample were more likely to endorse the coach being mindful of balance, but like race these discrepancies could be connected to who is coaching the team considering 34% of women’s sports teams were coached by women (NCAA, 2024). The team being mindful of balance was slightly higher for women as well as team willingness to talk about mental health though women were less likely to endorse teammates being willing to help; however, the SA Health and Wellness Study (2023) highlighted that participants on women’s teams were more likely to receive bystander engagement training and endorse a greater desire for coaches and
administrators to talk more about increased sexual violence prevention which may compound SA mental health. When addressing gender as a spectrum, the current study excluded SAs who are non-binary, and/or trans due to small sample size; however, further research on the experience of all gender non-conforming SAs is needed.

**Sexuality**

Often lumped into the singular category of LGBTQ+, previous research on gender non-conforming and Queer-Spectrum SAs is limited, with the actual rate of SAs who identify as LGBTQ+ SAs within the NCAA being largely unknown (Mullin et al., 2023) compared to other demographic data. Mullin et al. (2023) conducted a pilot study aiming to better understand the sexual orientation and gender identities of SAs specifically capturing estimates of LGBTQ+ identities in the NCAA. The findings of Mullin et al. (2023) suggest that 14.2% of SAs or approximately 80,000 NCAA SAs identify as LGBTQ+ almost ten times the previous Turk (2018) estimation from sport scholars. The current study demographic of Queer-Spectrum SAs is slightly above the Mullin et al. (2023) suggestion at 16.1% and those SAs experienced a statistically significant five-point median difference scoring higher than Straight SAs on the PHQ-ADS scale. The results align with the most recent NCAA Health and Wellness Study (2023) in which Queer-Spectrum SAs reported mental health concerns at a higher rate than Straight SAs. In fact, the NCAA (2023) found that Queer-Spectrum and Trans/Non-binary SAs are more likely than their Straight Cisgender SA peers to endorse mental health concerns “constantly” or “most every day” in every category surveyed including feeling mentally exhausted, overwhelming anxiety, so depressed it was difficult to function, and feeling hopeless. Similarly, when surveyed about the overall team environment, Queer-Spectrum SAs in the current study were more likely than their Straight SA counterparts to somewhat to strongly
disagree that their coach is mindful about finding a balance between performance and personal wellness and openly talks about mental health. When considering Queer-Spectrum SAs in the current sample are less likely to agree that they feel comfortable talking with their coach about problems and that their coach fosters a positive culture that supports mental wellness, it is not surprising that Queer-Spectrum SAs experience an increased rate of depression and anxiety symptomology than Straight SAs in alignment with the NCAA Student-Athlete Health and Wellness Study (2023)

Limitations

As with all research, the current study included several limitations. One of the most noticeable limitations includes the study sample size. The sample size was reduced when participants who preferred not to respond to certain demographic data (i.e., race, gender, sexuality) were removed. Though there were 145 participants, the sample size did not allow demographic data to be analyzed by multiple race, gender, and sexuality characteristics. Instead, for the purposes of comparison and the ability to achieve the minimal cell size to conduct MANOVAs, race, gender, and sexuality were collapsed into the following dichotomous categories: BIPOC/White, Male/Female, and Queer-Spectrum/Straight. Consequently, gender non-confirming SAs were removed from the analysis decreasing the sample size and eliminating the current opportunity to gain further understanding into the specific marginalized experiences of these SAs.

In addition to sample size, the demographic composition of the sample may also provide further limitations. Sixty-seven percent of the survey participants were women; however, the 2022-23 NCAA demographics database (2024) reports that 56% of current participants in the NCAA are men when surveyed dichotomously. With only 37 men participating in the current
research, results likely do not capture the full experience of participants on men’s sports teams; however, the research supports that women are somewhat more likely to volunteer to participate in research over men (Otufowora et al., 2021). Also, though the sample split by race was similar to the most recent NCAA demographic of 62% White and 38% BIPOC, White SAs in the current sample were slightly oversaturated at more than 67% and BIPOC SAs almost 33% with almost 48% of the current research sample being White women. BIPOC SAs were a small portion of the sample and limiting factors (i.e., additional IRB approvals) prevented disseminating the survey to some colleges/universities, including some historically Black colleges and universities. Considering the small BIPOC sample, the researcher was unable to perform data analysis on specific differences between the mental health concerns and experiences of the SAs who identified as Asian \( n = 3 \), Black/AA (30), multi-racial (7), or Native Hawaiian/Pacific Islander (1) instead needing to collapse them into the singular BIPOC to perform the necessary analysis.

As with other surveys delivered virtually, the researcher was unable to control the setting or environment in which participants completed the instrument. Participants could have been in a distracting environment that did not allow them to fully focus on, comprehend, and respond to survey items. Considering the timing of the data collection being from the beginning of February to the latter end of March, participants could have been at one of several points within their spring semester that may impact mental health: beginning classes, off-season workouts, post-season competition, and/or midterms. The researcher was unable to capture if these or any other expectations a SA may face may have influenced the completion of the survey. Acknowledging that almost 235 participants started the survey and only 161 participants completing all instrument items, SAs may have experienced a lack of motivation to complete the survey. Another possible limitation included the concept of response bias. With student-athletes likely
having knowledge of and possibly being influenced by stigma or thoughts of researcher expectations, it was possible that SAs responded in a manner that reflects what they believe the researcher may have wanted to see instead of their actual beliefs. Despite these limitations, the results of this study have meaningful implications worth thoughtful consideration.

**Implications**

Most SAs in the current sample endorsed at least minimal mental health concerns; however, the SA experience varies with certain SAs at greater risk for depression and anxiety symptomology. Overall, the current study findings underscore the heightened need for targeted interventions, strategies, and policies to address the mental health challenges faced by SAs. Just as SA mental health concerns should be considered holistically through the interconnected biopsychosocial lens, SA support should be multifaceted as well and the following sections outline implications and recommendations specific for SAs themselves, the NCAA, colleges and universities, mental health practitioners, and policymakers who each play a vital role in enhancing the mental health and well-being of SAs.

**Implications for Student-Athletes (SAs)**

All but two SAs in the current study endorsed experiencing at least one depression or anxiety symptom highlighting an elevated need for increased awareness and self-advocacy regarding their own mental health. Student-athletes should continue to advocate for pertinent conversations with coaches, administration, institutions, and the NCAA that will address biopsychosocial stressors improve SA overall quality of life. Educating SAs on recognizing symptoms and understanding when to seek help is vital. Furthermore, encouraging a culture of openness and support can reduce stigma and promote help-seeking behaviors, with peer-led initiatives and mentoring serving as effective support systems (Chow et al., 2020).
**Implications for NCAA**

Regardless of NCAA division, the mean PHQ-ADS score for the sample fell within the mild range with women and Queer-Spectrum SAs endorsing higher symptoms than their male and Straight SA counterparts. There is a pressing need for the development and implementation of comprehensive mental health policies from the NCAA that cater specifically to the needs of diverse SA populations. This should occur in conjunction with an increase in funding and resources dedicated to tailored mental health initiatives such as training for coaches and staff on mental health awareness and intervention strategies. Additionally, continued research on SAs and monitoring are essential to understand the evolving needs of SAs and the effectiveness of the strategies implemented. Research should be intentional to address marginalized SAs and those who compete at Division II and III institutions to address the gaps that are present in the current research.

**Implications for Colleges/Universities**

Student-Athletes for the current study endorsed being more knowledgeable of mental health support services than they are willing to access said services. Knowing where to go and being less willing to go could be connected to stigma. Colleges and universities should work towards integrating mental health services within athletic departments to make them more accessible to SAs and decrease the possible impact of perceived public stigma. This integration should include having mental health professionals as part of the athletic department; however, staffing should be intentional with a commitment to providing all SAs with provider options that are diverse and align with SA identities (Kroshus et al., 2023). Moreover, there should be a push towards implementing educational programs that address mental health, resilience, and life skills as part of the SAs training regimen, preparing them for pressures both on and off the field.
Institutions also need to foster an environment where mental health is as much a priority as physical health, thereby challenging the stigma associated with mental health issues.

**Implications for Mental Health Practitioners**

For mental health practitioners, specialized training in the unique stresses and pressures faced by SAs is necessary. Practitioners should also work collaboratively with coaches, trainers, and athletic staff to create a supportive environment for SAs, which includes regular consultations and joint workshops that can increase provider visibility as some SAs may be knowledgeable that the services exist, but unsure of how to access them. Critical to preventing the escalation of mental health issues and growing concern with SA death by suicide (Whelan et al., 2024), proactive engagement with SAs should be consistent with regular screenings and early intervention programs created specifically addressing the needs of SA. Mental health services should be multifaceted and not one size fits all. Instead, mental health practitioners should tailor services to not only encompass the identity of the SA but also the interconnected biopsychosocial stressors that may be experienced while navigating the dual role of a SA.

**Implications for Policy and Program Development**

Recently, Pennsylvania passed House Bill 1367 (Pennsylvania General Assembly, 2023) which would ensure students, coaches and other stakeholders are knowledgeable of mental health services within the school and community. The bill would not only require training on student mental health for all high school coaches, but also the revision of Pennsylvania’s health, safety, and physical education standards, identification of curriculum on mental health awareness, biannual notification of available mental health services, and providing information to parents when athletic or extracurricular activities are interrupted for a student. The passing of PA HB 1367 and other legislation such as the Virginia Senate Bill 818 (Virginia General
Assembly, 2023), which directs the development of a mental health curriculum to educate and increase awareness, could empower future NCAA SAs to better understand the general themes of mental health and wellness, recognize mental health symptoms, promote mental wellness, and strengthen self-advocacy skills. Legislating policy, developing programs, and addressing the implications discussed previously could allow all stakeholders to play a pivotal role in improving the mental health outcomes and overall well-being of NCAA SAs; however, to properly understand the implications continued research is necessary to identify and address any gaps that may be present with respect to holistic SA mental health.

**Recommendations for Future Research**

Future research should study the intersection of marginalized identities and how twice (or more) marginalized SAs may experience mental health concerns differently. Because of sample size the current study was unable to address the intersectionality of race, gender, and sexuality collectively instead analyzing only the intersectionality of race and gender collectively and sexuality independently. A larger sample size would allow for further analysis on differences observed. With respect to sampling, future research should be more intentional on recruiting participants on men’s teams to ensure that the sample better reflects the current demographics of the NCAA.

Aligning with Eisenberg and colleagues (2009) report that male college students are likely to have higher rates of stigma, the current sample also indicated a higher median score for men. Considering SAs may underreport symptoms for fear of being perceived as weak, it may be beneficial for future studies to use a lower cut-off score to identify moderate symptomology (Keenan et al., 2023). Future researchers may want to consider using additional scale items to evaluate stigma as the current study assessed perceived public stigma, personal stigma, and self-
stigma using only a single item for each form. While no statistically significant difference was captured with respect to SA stigma in the current study, the verbiage of the stigma items may not have directly reflected SA stigma in comparison to the stigma of other SA, but to the generalized public instead. Perceived public stigma was assessed using the statement ‘most people think less of a person who has received mental health treatment’ and it may be beneficial for future research to address if SAs perceive a difference using the phrase ‘most SAs’ to enable a more direct comparison to other SAs in addition to the general public.

Looking further at the sampling for the current study, though the sample aligned with current NCAA demographics, the sample of BIPOC SAs was less than fifty. This is not surprising when considering that racially and ethnically marginalized people, especially Black/African American people, are significantly less likely to participate in (Webb et al., 2019) and complete (Jang & Vorderstrasse, 2019) health related research. To address this likelihood, future researchers should consider providing monetary compensation (Webb et al., 2019) or identify ways to embed self within the SA community to enhance the trust and partnership with SAs, institutions, and conferences.

When considering the ability to access specific SA populations, further research may benefit from looking at the gatekeeping process with respect to SA research at individual colleges and universities. Some institutions required additional authorization despite researcher institute IRB approval. Research study requests may not always reach SAs due to gatekeeping by coaches, administration, or institution. Some instances of gatekeeping may be rooted in historical barriers that hinder or deter certain populations from participating in health research; however, these methods may need to be better understood to ensure that the needs of all SAs, especially those who are marginalized, are able to be better researched.
Currently there is no way to systemically track how many Queer-Spectrum and gender non-conforming SAs compete in the NCAA and only percentage estimates are known (Mullin et al., 2023). Future research should include allowing SAs to choose their gender and sexual identity on a spectrum rather than on a dichotomous scale. It is encouraging to note that the recent NCAA Student-Athlete Health and Wellness Study (2023) included and explicitly reported the experience of Trans/Nonbinary SAs which included SAs who self-identifying as genderqueer, nonbinary, transgender, another gender identity, or multiple gender identities; however, the current study did not have any participants on men’s teams who identified as Gay though there were two male SAs who identified as Bisexual. It is important to identify the needs of Queer and gender-nonconforming, but to do that researchers must first identify who these SAs are then they must investigate their specific needs especially when you consider coupling the fact that men are more likely to die by suicide (Rao et al., 2015; Whelan et al., 2024) and Queer-Spectrum folks are three times more likely to self-injure, have suicidal ideation and attempts (Marshal et al., 2011; Rankin & Weber, 2014). The need for additional research to address the specific mental health concerns of all SAs is high with a plethora of novel biopsychosocial stressors being introduced and recognized as NCAA athletics continue to evolve.

Though not the primary focus of the current study, both the Name Image and Likeness (NIL) and transfer portal are relatively new opportunities that should be a focus of future researchers. Twelve percent of participants in the current study acknowledged currently having NIL opportunities and it is speculated that more than 450,000 SAs have earned NIL money through the partnership with local businesses and promotions (Rudder, 2024). Receiving NIL benefits or not could be the difference of SAs deciding to commit to one school or another and the transfer portal provides SAs the ability to make decisions that could change their financial
situation and lives. Both NIL deals and the transfer portal may add to the potential biopsychosocial stressors that SAs experience considering mental health was identified as one of the most cited reasons SA transferred according to the NCAA Student-Athlete Well-Being Study (2022) with women’s sports participants endorsing mental health and conflict with coach or teammate as primary reasons for transfer at higher rates than participants on men’s sports teams. With the relative novelty of both NIL and the transfer portal, additional research is necessary to better understand how these areas may impact SA mental health.

Conclusion

Overall, the researcher aimed to identify differences in SA mental health concerns, promote the need for increased research efforts, implementation, and creation of mental health literacy, support services and other resources that enhance SA mental health holistically across all demographics while decreasing stigma and improving perceptions about helpfulness and access. The results of this study indicated that participants on women’s teams and Queer-Spectrum SAs endorse more mental health concerns than participants on men’s teams and Straight SAs; however, most SAs reported at least minimal depression and/or anxiety symptoms. This finding when coupled with death by suicide now being the second leading cause of death for SAs (Whelan, 2024) highlights an urgent need to ensure that SAs are provided with the necessary services and supports tailored to their specific needs whether based on identity or the specific biopsychosocial stressors faced when navigating the dual role as a SA.
References

American College Health Association (ACHA). (2019, Spring). National college health assessment II [Data file]. Silver Spring, MD: ACHA.


Appendix A

Survey Instrument

Please indicate your overall health and quality of life.

<table>
<thead>
<tr>
<th></th>
<th>Very Poor</th>
<th>Poor</th>
<th>Average</th>
<th>Good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>How would you rate your overall health?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>How would you rate your overall quality of life?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>How would you rate your overall relationship with your coach?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>How would you rate your overall team environment?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Over the last 2 weeks, how often have you been bothered by any of the following problems?

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>Several days</th>
<th>More than half the days</th>
<th>Nearly every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little interest or pleasure in doing things</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Feeling down, depressed, or hopeless</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Trouble falling or staying asleep, or sleeping too much</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Feeling tired or having little energy</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Poor appetite or overeating</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Feeling bad about yourself—or that you are a failure or have let yourself or your family down</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Trouble concentrating on things, such as reading (the newspaper) or watching television</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>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</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Thoughts that you would be better off dead, or of hurting yourself</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

If you identified any problems above, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

- ○ Not difficult at all
- ○ Somewhat difficult
- ○ Very difficult
- ○ Extremely difficult
Over the last two weeks, how often have you been bothered by the following problems?

<table>
<thead>
<tr>
<th>Feeling nervous, anxious, or on edge</th>
<th>Not at all</th>
<th>Several days</th>
<th>More than half the days</th>
<th>Nearly every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not being able to stop or control worrying</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Worrying too much about different things</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Trouble relaxing</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Being so restless that it is hard to sit still</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Becoming easily annoyed or irritable</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Feeling afraid, as if something awful might happen</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

If you identified any problems above, how difficult have they made it for you to do your work, take care of things at home, or get along with other people?

○ Not difficult at all
○ Somewhat difficult
○ Very difficult
○ Extremely difficult

How helpful do you think therapy/counseling is, when provided competently, for people who are experiencing mental health concerns?

○ Not helpful
○ Slightly helpful
○ Somewhat helpful
○ Very helpful

Please indicate whether you agree or disagree with the following statements.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>If I needed help for my mental or emotional health, I would seek help</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>If I needed help for my mental or emotional health, I would know where to go on my campus</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Most people think less of a person who has received mental health treatment</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I would think less of a person who has received mental health treatment</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I would think less of myself if I received mental health treatment</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Please indicate whether you agree or disagree with the following statements.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>My coach is mindful about finding a balance between team performance and athletes' personal wellness</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>My coach has never talked openly about mental health</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I feel comfortable talking with my coach if I have problems or concerns</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>My coach fosters a positive team culture that supports mental wellness</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
Please indicate whether you agree or disagree with the following statements.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most of my teammates are mindful about finding a balance between athletic performance and personal wellness</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>No one on my team is willing to talk openly about mental health</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>My team is willing to help if a teammate is experiencing mental health issues</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>My team has a culture that supports teammates’ mental wellness</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Have you utilized any mental health support services (therapy, mental health, mental performance, mental health literacy, sports psychology support) in the past 12 months?

☐ No
☐ Yes

What kind of support services have you received? Select all that apply

☐ Performance optimization (e.g., performance anxiety, goal attainment, confidence, imagery, energy regulation, mindfulness training, etc.)
☐ Life, sport, or performance challenges (e.g., stress management, injury, adjustment to college, transition out of sport, coach/teammate concerns, relationship concerns, sleep, etc.)
☐ Mental health concerns (e.g., mood concerns, anxiety, depression, disordered eating, sleep concerns, ADHD/learning differences, substance use)
☐ Medication management
☐ Campus Counseling Center
☐ Athletics Department Counseling Services
☐ Sport Psychologist
☐ Other

Are you currently receiving mental health support/counseling/therapy?

☐ No
☐ Yes

Have you experienced a significant injury that has caused you to miss practice and/or games within the past 12 months?

☐ No
☐ Yes

Are you currently injured?

☐ No
☐ Yes

How old are you?

☐ Division I
☐ Division II
☐ Division III
What region is your institution located in?

- New England (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont)
- Middle Atlantic (Delaware, Maryland, New Jersey, New York, Pennsylvania)
- South (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, South Carolina, Tennessee, Virginia, West Virginia)
- Midwest (Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin)
- Southwest (Arizona, New Mexico, Oklahoma, Texas)

What sports team are you a member of?

What is your current athletic eligibility status?

- Freshman
- Sophomore
- Junior
- Senior
- Graduate Student

Are you a redshirt student-athlete?

- No
- Yes

What is your current GPA?

- 3.5-4.0
- 3.0-3.49
- 2.5-2.9
- 2.49 or below

Are you on a scholarship (academic and/or athletic)?

- No
- Yes

What type of scholarship(s) have you been awarded?

- Partial
- Full
- Athletic
- Academic

Are you currently receiving any NIL benefits?

- No
- Yes
Race (choose all that apply)

- American Indian/Alaska Native
- Asian
- Black/African American
- Multi-ethnic
- Native Hawaiian/Pacific Islander
- White
- Other
- Prefer to not respond

Ethnicity

- Hispanic/Latino/Spanish Origin
- Not Hispanic/Latino/Spanish Origin
- Prefer to not respond

What is your gender identity?

- Man
- Woman
- Non-binary
- Transgender/Transwoman
- Transgender/Transman
- Not listed
- Prefer to not respond

What is your sexual identity?

- Bisexual
- Gay
- Lesbian
- Pansexual
- Questioning
- Straight
- Queer
- Not listed
- Prefer to not respond
Have you ever been diagnosed by a medical or mental health professional with any of the following health conditions? (check all that apply)

☐ ADD/ADHD
☐ Anxiety
☐ Bipolar
☐ Body dysmorphic disorder
☐ Depression
☐ Eating disorder
☐ Insomnia
☐ Obsessive-compulsive disorder
☐ Post-traumatic stress disorder
☐ Substance use disorder
☐ Other
☐ I have not been diagnosed with a mental health condition
Appendix B

Informed Consent

<table>
<thead>
<tr>
<th>Consent for Research Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title</strong></td>
</tr>
<tr>
<td>AN EVALUATION OF MARGINALIZED STUDENT-ATHLETE MENTAL HEALTH, ACCESS TO AND UTILIZATION OF SUPPORT SERVICES</td>
</tr>
<tr>
<td><strong>Researcher(s)</strong></td>
</tr>
<tr>
<td>Ashley Boles, University of Memphis</td>
</tr>
<tr>
<td><strong>Researchers Contact Information</strong></td>
</tr>
<tr>
<td>910-850-1101, <a href="mailto:aboles@memphis.edu">aboles@memphis.edu</a></td>
</tr>
</tbody>
</table>

You are being asked to participate in a research study. The box below highlights key information for you to consider when deciding if you want to participate. More detailed information is provided below the box. Please ask the researcher(s) any questions about the study before you make your decision. If you volunteer, you will be one of about 300 people to do so.

<table>
<thead>
<tr>
<th>Key Information for You to Consider</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Voluntary Consent:</strong> You are being asked to volunteer for a research study. It is up to you whether you choose to participate or not. There will be no penalty or loss of benefit to which you are otherwise entitled if you choose not to participate or discontinue participation.</td>
</tr>
<tr>
<td><strong>Purpose:</strong> The purpose of this research is to evaluate mental health concerns and support service access and utilization of Student-Athletes. By doing this study, we hope to better understand if marginalized Student-Athletes experience mental health concerns and utilize services differently than those who are not marginalized. You are being invited to participate because you are a Student-Athlete at an NCAA Division I, II, or III institution.</td>
</tr>
<tr>
<td><strong>Duration:</strong> It is expected that your participation will last 5-10 minutes.</td>
</tr>
<tr>
<td><strong>Procedures and Activities:</strong> You will be asked to complete a survey using Qualtrics.</td>
</tr>
<tr>
<td><strong>Risk:</strong> You may experience stress, emotional distress, inconvenience and possible loss of privacy and confidentiality associated with participating in a research study. Some psychological risk may occur from survey questions that ask about possible mental health symptoms and may be distressing or triggering as you think about your experiences. If at any time you feel uncomfortable, you can withdraw from the study.</td>
</tr>
</tbody>
</table>

Institutional Review Board
315 Administration Bldg.
Memphis, TN 38152-3370
Office: 901.678.2705
Fax: 901.678.2219
point your symptoms are triggering you are encouraged to utilize the resources provided at your institution and/or at the end of the survey.

**Benefits:** There is no direct benefit to the participant, but the researcher hopes to learn if marginalized Student-Athletes differ in their mental health symptoms, mental health stigma, access to mental health services, and utilization of mental health services based on their division status (i.e., D-I, II, or III), and injury status (i.e., currently injured, not injured, previously injured), or demographic (race/ethnicity, gender, and sexuality).

**Alternatives:** Participation is voluntary, and the only alternative is to not participate.

---

**Who is conducting this research?**
Ashley Boles, Doctoral student from the University of Memphis, Counseling, Educational Psychology and Research (CEPR) Department is in charge of the study. Her faculty advisor is Dr. Melanie Burgess and her committee co-chair is Dr. Francis Ellmo. There may be other research team members assisting during the study. No member of the research team has a significant financial interest, and/or a conflict related to the research.

**What happens if I agree to participate in this Research?**
If you agree to participate, the following will occur:

- Participants will decide to volunteer to complete the survey following informed consent
- Participants will take a survey on Qualtrics that will take approximately 5-10 minutes
- Participants will answer questions related to their Student-Athlete experience, mental health, injury status, and demographics
- Participants may skip any question that causes discomfort and may stop at any time
- Participation will conclude when the participant completes/exits the survey
- The research will be conducted using University of Memphis Qualtrics and SPSS applications

**What happens to the information collected for this research?**
Information collected for this research will be used to complete the Doctoral dissertation requirements and may be submitted to peer reviewed journals and/or conferences for future publication and presentations; however, any identifying information will be kept confidential. This information could be used for future research without obtaining additional consent.

**How will my privacy and data confidentiality be protected?**
We promise to protect your privacy and security of your personal information as best we can. Although you need to know about some limits to this promise. Measures we will take include:

- Participants will not be asked to provide any identifying information
- Participants will be assigned an ID number to protect confidentiality
- Participant responses will be kept confidential and the electronic copies of the data will be protected with password and kept on the principal investigator's computer
- Only the researcher involved in this study will have access to the survey results
- Qualtrics settings have been set to anonymize participant responses and will not collect IP addresses

Individuals and organization that monitor this research may be permitted access to inspect the research records. This monitoring may include access to your private information. These individual and organization include

- Institutional Review Board
- Dissertation Committee Members
- Researcher

**What if I want to stop participating in this research?**

It is up to you to decide whether you want to volunteer for this study. It is also ok to decide to end your participation at any time. There is no penalty or loss of benefits to which you are otherwise entitled if you decided to withdraw your participation. Your decision about participating will not affect your relationship with the researcher(s) or the University of Memphis.

**Will it cost me money to take part in this research?**

There are no costs associated with participation in this research study

**Will I receive any compensation or reward for participating in this research?**

You will not be compensated for taking part in this research

**Who can answer my question about this research?**

Before you decide to volunteer for this study, please ask any questions that might come to mind. Later, if you have questions, suggestions, concerns, or complaints about the study, you can contact the investigator, Ashley Boles at aboles@memphis.edu or Dr. Francis Ellmo at fellmo@memphis.edu, or Dr. Melanie Burgess at m.burgess@memphis.edu. If you have any questions about your rights as a volunteer in this research, contact the Institutional Review Board staff at the University of Memphis at 901-678-2705 or email irb@memphis.edu. We will give you a signed copy of this consent to take with you.
STATEMENT OF CONSENT

I have had the opportunity to consider the information in this document. I have asked any questions needed for me to decide about my participation. I understand that I can ask additional questions through the study.

By signing below, I volunteer to participate in this research. I understand that I am not waiving any legal rights. I have been given a copy of this consent document. I understand that if my ability to consent for myself changes, my legal representative or I may be asked to consent again prior to my continued participation.

____________________________  ______________________________  ________________
Name of Adult Participant      Signature of Adult Participant                  Date

Researcher Signature (To be completed at the time of Informed Consent)

I have explained the research to the participant and answered all of his/her questions. I believe that he/she understand the information described in this consent and freely consent to participate.

____________________________  ______________________________  ________________
Name of Research Team Member   Signature of Research Team Member                  Date
Appendix C

Sample Histogram, Q-Q Plots, Scatterplots: Gender-PHQ-ADS Total

**Figure D1**

*Histogram: Normality for Men Research Question Two*

**Figure D2**

*Histogram: Normality for Women Research Question Two*
**Figure D3**

*Normal Q-Q Plot: Normality for Men Research Question Two*

**Figure D4**

*Normal Q-Q Plot: Normality for Women Research Question Two*
Figure D5

Scatterplot: Linearity for Gender Research Question Two
University of Memphis IRB Approval

<table>
<thead>
<tr>
<th>IRB #</th>
<th>PRO-FY2024-193</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
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<td>11-20-2023</td>
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<td>End Date</td>
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<tr>
<td>Principal Investigator</td>
<td>Ashley Boles</td>
</tr>
<tr>
<td>Review Board</td>
<td>University of Memphis</td>
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<td>Sponsor</td>
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Study History

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Key Study Contacts

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<tr>
<th>Member</th>
<th>Role</th>
<th>Contact</th>
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<tbody>
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<tr>
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