

Old Dominion University

## ODU Digital Commons

---

Counseling & Human Services Theses & Dissertations

Counseling & Human Services

---

Summer 2019

# A Comparison of College Student-Athletes With Attention-Deficit Hyperactivity Disorder (ADHD) and Nonathletes With ADHD: Academic Adjustment, Severity of Mental Health Concerns, and Complexity of Life Concerns

Sonja Lund

*Old Dominion University*, [sonja.lund89@gmail.com](mailto:sonja.lund89@gmail.com)

Follow this and additional works at: [https://digitalcommons.odu.edu/chs\\_etds](https://digitalcommons.odu.edu/chs_etds)



Part of the [Counseling Psychology Commons](#), and the [Higher Education Commons](#)

---

### Recommended Citation

Lund, Sonja. "A Comparison of College Student-Athletes With Attention-Deficit Hyperactivity Disorder (ADHD) and Nonathletes With ADHD: Academic Adjustment, Severity of Mental Health Concerns, and Complexity of Life Concerns" (2019). Doctor of Philosophy (PhD), dissertation, Counseling and Human Services, Old Dominion University, DOI: 10.25777/85vd-yr45  
[https://digitalcommons.odu.edu/chs\\_etds/112](https://digitalcommons.odu.edu/chs_etds/112)

This Dissertation is brought to you for free and open access by the Counseling & Human Services at ODU Digital Commons. It has been accepted for inclusion in Counseling & Human Services Theses & Dissertations by an authorized administrator of ODU Digital Commons. For more information, please contact [digitalcommons@odu.edu](mailto:digitalcommons@odu.edu).

A COMPARISON OF COLLEGE STUDENT-ATHLETES WITH ATTENTION-DEFICIT  
HYPERACTIVITY DISORDER (ADHD) AND NONATHLETES WITH ADHD: ACADEMIC  
ADJUSTMENT, SEVERITY OF MENTAL HEALTH CONCERNS, AND COMPLEXITY OF  
LIFE CONCERNS

by

Sonja Lund  
B.S. December 2011, Old Dominion University  
M.S.Ed. May 2015, Old Dominion University

A Dissertation Submitted to the Faculty of  
Old Dominion University in Partial Fulfillment of the  
Requirements for the Degree of

DOCTOR OF PHILOSOPHY

EDUCATION (CONCENTRATION IN COUNSELING EDUCATION)

OLD DOMINION UNIVERSITY  
August 2019

Approved by:

Alan Schwitzer (Chair)

Shana Pribesh (Methodologist)

Christine Berger (Member)

## ABSTRACT

### A COMPARISON OF COLLEGE STUDENT-ATHLETES WITH ATTENTION-DEFICIT HYPERACTIVITY DISORDER (ADHD) AND NONATHLETES WITH ADHD: ACADEMIC ADJUSTMENT, SEVERITY OF MENTAL HEALTH CONCERNS, AND COMPLEXITY OF LIFE CONCERNS

Sonja K. Lund  
Old Dominion University, 2019  
Chair: Dr. Alan Schwitzer

College student-athletes traditionally experience more stressors than their nonathletic peers due to their dual roles. ADHD causes impairments in executive functioning which can cause additional stress for the college student. The combination of ADHD and student-athlete status may impact academic adjustment, mental health severity, and complexity of college life concerns. Presently, no study has explored how student-athletes with ADHD may compare with nonathletes with ADHD in terms of these elements. The purpose of this study is to address this gap in literature and by analyzing archival data collected from university students across the United States. This study utilized an ex-post facto, survey cross-sectional, correlational research design to examine archival data. The data were analyzed using analysis of variance and logistic regression. Results of the study indicated that when compared to student-athletes, nonathletes reported lower levels of academic adjustment, higher levels of severity of mental health concerns, and higher levels of complexity of college life concerns. Implications for college counseling administrators, university and athletic administrators, and students are discussed. Limitations of the study and recommendations for future research are provided.

Copyright, 2019, Sonja Kristin Lund, All Rights Reserved.

This dissertation is dedicated to the concept of resilience and pursuit of dreams.

## ACKNOWLEDGMENTS

This dissertation would not exist without the support of my mentors, colleagues, peers, friends, and family. I would like to begin by thanking my dissertation committee who did not hesitate to jump on board this rapid journey with me. Thank you to my chair Dr. Alan “Woody” Schwitzer for all your advice, encouragement, time, and feedback. I will forever be grateful that you took a chance on me at the last minute and believed in me along the way. To my methodologist, Dr. Pribesh, you have provided me with so much relief throughout this process. Thank you for your time, easing my anxieties, and providing a sense of humor throughout the process. Your presence as a strong female in the academic environment has taught me my own value. To my reader, Dr. Berger, you brought such a sense of calmness and positivity to my dissertation. Thank you for your feedback, accessibility, and kindness. I could not have asked for a better group of individuals to keep me grounded and help me reach my optimum potential.

I have been fortunate enough to have several people I consider mentors who have helped me through this program. Dr. Jennifer Linnekaste, I can not thank you enough for encouraging and supporting my clinical endeavors and passion with the student-athlete population. I am so lucky to have met someone at Old Dominion with such a giving heart that in addition to calling a mentor I can call a friend. I’d like to thank Ragean Hill for advocating for the mental health of student-athletes and for allowing me to pursue my passion at Old Dominion University. You gave me a rare opportunity and I will forever be grateful. Dr. Adela Roxas, you started it all and have been an amazing mentor, friend, and resource. All of you helped keep my dreams alive so that I could get to this point and research a topic that matters to me.

To my cohort, you are all amazing individuals and I am truly blessed to know each and every one of you. I am proud to call you my peers but mostly I am grateful to have you as

friends. T’Airra and George, I have so much love for the two of you. I know I would not be where I am today without you both! Thank you T’Airra for being there all those late nights on campus. I’d go through all the chaos of a doctoral program again just to have the universe align me with a best friend like you. Thank you to all the doc students before me, who showed me this is possible! I appreciate your encouragement, advice, and honesty. To my CARC crew, you’ve been a pleasure to work with and thank you for all of your support and good conversation.

I am extremely lucky to have the support of friends and family outside of the program. To my amazingly wonderful friend Marrissa, I have no idea how to thank you for all that you’ve done for me. I hope you know that without you I would not have been able to achieve these goals, you are an integral part of my life. You have gone above and beyond friend duties and I love you so much! My longtime and long-distance friend Deanna, I want to thank you for all your patience and support while I pursued this degree. Now we can finally have longer conversations! To my friend Kelli, thank you for calling to check and make sure I was still alive! I’d like to thank my mom for all her support. I always want to make you proud but thank you for letting me know that more than anything I should pursue things for my own happiness. I love you! To my brother, I’m so grateful for the bond that we have and I’m extremely proud of you. I always want to be a good example, and I’ve enjoyed watching you grow and become your own independent person. Thank you to my dad for his encouragement. I’m grateful for my cat, Maestro, for keeping me grounded and forcing me to take breaks and give him attention.

Finally, thank you to the American College Health Association. Without the use of their data set, this dissertation would not be possible.

## TABLE OF CONTENTS

	Page
LIST OF TABLES .....	IX
LIST OF FIGURES .....	X
INTRODUCTION .....	1
Background of the Problem .....	1
Statement of the Problem.....	5
Purpose of the Study .....	6
Significance of the Study .....	6
Description of Research Design.....	7
Theoretical Framework.....	7
Limitations .....	8
Research Questions and Hypotheses .....	9
Relevant Terminology .....	10
Conclusion .....	11
LITERATURE REVIEW .....	12
Adjustment to College .....	12
College Student Mental Health and Life Concerns .....	15
ADHD .....	24
Student-Athletes as a Specialized Campus Population.....	32
Current Study .....	49
METHODOLOGY .....	51
Research Design.....	52
Participants.....	53
Instrumentation .....	56
Data Analysis .....	62
Limitations .....	65
Conclusion .....	70
RESULTS .....	71
Analysis of Assumptions and Data Cleaning.....	65
Description of Analyses .....	71
Research Question 1: To What Extent Do College Student-Athletes with ADHD Differ from Nonathletes With ADHD on Levels of Academic Adjustment? .....	71



Research Question 2: To What Extent Do College Student-Athletes with ADHD Differ from Nonathletes With ADHD on Severity of Mental Health Concerns? .....	72
Research Question 3: To What Extent Do College Student-Athletes with ADHD Differ from Nonathletes With ADHD on Complexity of College Life Concerns?.....	75
DISCUSSION .....	78
Summary of Problem .....	78
Major Findings.....	80
Integrating the Findings .....	85
Implications.....	87
Limitations .....	90
Recommendations for Future Research .....	91
Conclusion .....	92
REFERENCES .....	94
APPENDICES .....	112
RESEARCH DOCUMENTATION.....	113
DESCRIPTIVE TABLES .....	116
ANALYSIS TABLES.....	120
VITA .....	126

## LIST OF TABLES

Table	Page
1. Participants' Demographics: Gender.....	54
2. Participants' Demographics: Age.....	55
3. Participants' Demographics: Race/Ethnicity.....	117
4. Research Questions, Variables, and Analyses.....	64
5. Means and Standard Deviations for Dependent Variables.....	118
6. Intercorrelations for Continuous Dependent Variables.....	119
7. Univariate ANOVA Summary for Academic Adjustment.....	121
8. Logistic Regression Summary for Depression Diagnosis.....	121
9. Univariate ANOVA Summary for Depression.....	122
10. Univariate ANOVA Summary for Severity of Mental Health Concerns.....	122
11. Univariate ANOVA Summary for Level of Stress.....	123
12. Logistic Regression Summary for Receiving University Mental Health Services.....	123
13. Logistic Regression Summary for Future Mental Health Help-seeking.....	124
14. Means and Standard Deviations for Previous Mental Health Providers.....	124
15. Univariate ANOVA Summary for Complexity of Mental Health Concerns.....	125
16. Univariate ANOVA Summary for Complexity of College Life Concerns.....	125

## LIST OF FIGURES

Figure	Page
1. Baker and Siryk's model of adjustment to college.....	8

## **CHAPTER I**

### **INTRODUCTION**

In this chapter, the researcher introduces the proposed study. An overview of the problem will be presented along with the purpose and significance of the study. Limitations of past research will also be discussed. The chapter will conclude with a description of the research questions and hypotheses, research design, theoretical framework for the current study, and descriptions of relevant terminology.

#### **Background of the Problem**

As college enrollment has increased, the attention given to college student issues has followed suit. Upon entering higher education, college students face new adjustments in terms of life, academics, and mental health. Examples include acclimating to new social roles, accepting new responsibilities, separating from family and friends, and becoming constructive members of a college community (Credé & Niehorster, 2012). Successful navigation of college requires that students effectively adjust to more than just increased academic demands. Historically, research has found differences based on gender in terms of academic adjustment and mental health among college students (Schwitzer et al., 2018).

#### **Academic Adjustment**

Many major decisions are made in college. Freshman who enter college with a decided academic major display better academic adjustment (Smith & Baker, 1987). Individuals who struggle with academic adjustment and the low structured environment, are more likely to have poorer grades as academic adjustment is strongly linked with GPA (Credé & Niehorster, 2012; van Rooij, Jansen, & van de Grift, 2018). However, a smooth transition to college can be created by regulating study behaviors which has been shown to lead to higher GPAs. Additionally,

students who enter college with confidence in their academic performance and have higher expectations for academic success display higher performance (Chemers, Hu, & Garcia, 2001; van Rooij, et al. 2018).

### **Severity**

Severe mental health problems are those that cause significant disruption to a student's ability to function within the college environment that may require mental health care beyond what a campus counseling center can provide (Sharkin, 1997). Increased concern about college student mental health severity has been reported by several college counseling center employees (Kirsch, Doerfler, & Truong, 2015; Rando & Barr, 2008). However, reported increased levels of severity over time have been debated due to a lack of qualitative or quantitative evidence (Much & Swanson, 2010; Sharkin, 1997). Regardless, college students are still experiencing significant mental distress. Common severe mental health concerns among the population include anxiety, depression, suicidal thoughts and behaviors, and substance use. Some studies have found that college student populations are closely related on levels of severity to young people in primary care settings (Connell, Barkham, & Mellor-Clark, 2007). Over time, the number of students taking psychotropic medication and receiving services from counseling centers has steadily increased (Gallagher, 2008). Increased mental health severity has consequences for academic performance (De Luca, Franklin, Yueqi, Johnson, Brownson, 2016).

### **Complexity**

Complexity refers to a high rate of co-occurring issues (Coniglio, McLean, & Meuser, 2005). It has been proposed that perceptions of increases in severity are instead due to an increase in complexities of student problems (Gallagher, 2012; Much & Swanson, 2010). For example, students may be experiencing multiple problems such as relationship problems,

anxiety, and changing social mores all at the same time. Thus, the issues may not be more severe but rather more complex. Life stress, an individual's psychological reactions and adaptations to major life events, can contribute to the complexity of life concerns. Some specific life concerns that college students face include relationship problems, family, career, and grief. Research has found a significant negative relationship between life stress and GPAs taken at one- and two-year intervals (Lloyd, Alexander, Rice, & Greenfield, 1980). Further, stress is a commonly presented problem at university counseling centers (LeViness, Bershan, & Gorman, 2017).

### **Attention-Deficit Hyperactivity Disorder**

Attention-Deficit Hyperactivity Disorder (ADHD) is listed under the neurodevelopmental disorders section in the *DSM-5* and is characterized by “a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development” (American Psychiatric Association, 2013). Inattentive symptoms are behavior in nature and include difficulty remaining focused and disorganization. Hyperactivity symptoms are related to excessive motor activity. Symptoms of impulsivity occur when hasty actions take place without forethought. Some individuals may not receive an ADHD diagnosis until young adulthood or adulthood (Parr, 2011; Perrin & Jotwani, 2014; Stewman, Liebman, Fink, & Sandell, 2018). Those with primarily inattentive symptoms may be more likely to go unnoticed for much longer. When the individual is under intense academic demands which are far too great and there is a loss of outside regulation, symptomology appears more overt. Situations such as these are common in the college environment which can be one reason why for delayed diagnosis.

Those with ADHD have impairments in executive functioning. Problems in these areas lead to deficits in working memory, verbal working memory, planning and problem solving, and emotional self-regulation (Parr, 2011). Because ADHD impacts executive functioning, it can

make transitioning to college difficult as the environment often demands many of the skills those with impairments in executive functioning lack (Stamp, Banerjee, & Brown, 2014). Higher levels of ADHD symptoms were significantly related to lower levels of academic adjustment. Academically, college students with ADHD have been found to have lower grade point averages, are more likely to be on academic probation, and report more academic problems when compared to college students without ADHD (Gormley, DuPaul, Weyandt, & Anastopoulos, 2016; Heiligenstein, Guenther, Levey, Saino, & Fulwiler, 1999). Those with ADHD have been found to have higher rates of other psychiatric conditions including depression, anxiety disorders, substance use disorders, bipolar disorder, oppositional defiant and conduct disorders, and learning and language disorders (Stewman et al., 2018).

### **Student-athletes**

Student-athletes transitioning to college lead demanding lives that include balancing their athletic demands such as practice, games, training, and travel along with academic demands. Because they often see college as a continuation of their high school experience, they may not be prepared for this dual transition (Papanikolaou, Nikolaidis, Patsiaouras, & Alexopoulos, 2003). The number of stressors athletes face is quite large. Arnold and Fletcher (2012) identified 640 organizational stressors unique to an individual's sport participation in the following domains: leadership and personnel, cultural and team, logistical and environmental, and performance and personal. Student-athletes have reported significant stress due to scheduling clashes between their athletic demands, such as practice times, and scheduled class meeting times (Cosh & Tully, 2015).

Some student-athletes may experience mental health issues not limited to depression, substance abuse, and anxiety (Putukian, 2016). Due to their dual roles, student-athletes have

some life concerns that are different from the average college student. This can include pressure from peers, coaches, and parents; failure to meet expectations of performance; inability to participate in sport due to illness or injury; and termination of an athletic career (Rao & Hong, 2017).

ADHD is commonly examined in the ways it negatively impacts the individual. However, it has been suggested that ADHD has some benefits for student-athletes as sports may be an outlet for excess energy (Stewman et al., 2018). The athletic environment can be an emotional and physical outlet for coping with symptoms of ADHD (Parr, 2011). Athletes have reported the ability to hyperfocus and block out distractions during competitive events. Because of the impulsivity that may be present in ADHD athletes, they can often make quick and reactionary decisions which can increase positive reinforcement in the athletic environment (Perrin & Jotwani, 2014; Stewman et al., 2018).

ADHD student-athletes, however, may not experience the same type of success or positive reinforcement in the classroom. Student-athletes have described high school as something they needed little effort to pass (Parr, 2011). Although symptoms of inattention, disorganization, distractibility, and difficulty maintaining academic effort may have been present their entire life, they may not become more overt until they are in a more challenging academic environment like college. Additionally, elite or “star” athletes may have been automatically passed in high school classes due to their athletic ability even though their academic performance was insufficient.

### **Statement of the Problem**

Student-athlete status demands more from the college student which can impact their overall well-being. Additionally, transitioning to college as a student with ADHD can be a



challenge as the environment is less structured and often students may not discover they have ADHD until they transition to college. The pressure to balance student and athlete roles along with a disability can cause challenges in academic adjustment, added life stress and potentially lead to increased mental health severity. In addition to presently impacting the student-athlete, it has implications for their future careers.

### **Purpose of the Study**

The purpose of this study is to investigate the difference between college student-athletes with ADHD and nonathletes with ADHD. Specifically, this study looks at differences in academic adjustment, severity of mental health concerns, and complexity of college life concerns while controlling for gender. This study attempts to add to the existing literature by examining how athletic status along with a disability impact the student athlete when compared to their nonathletic peers.

### **Significance of the Study**

Recently, there has been an increased interest in student-athletes and their overall well-being and functioning. Existing literature has identified that student-athletes face stressors that differentiate them from their nonathletic peers (Cosh & Tully, 2015; Mellalieu, Neil, Hanton, & Fletcher, 2009). The proposed research study has implications for both college counseling and higher education research. Given the specific issues college student-athletes face, this research will expand upon our knowledge of the population in regards to their mental health, well-being, and academic adjustment. Such knowledge can then be used to improve academic and mental health interventions specific to this population. Specifically, insight gained from this research can be used to target the ADHD student-athlete population which may be at particular risk due to their role as a student-athlete and ADHD disability status.

### **Description of Research Design**

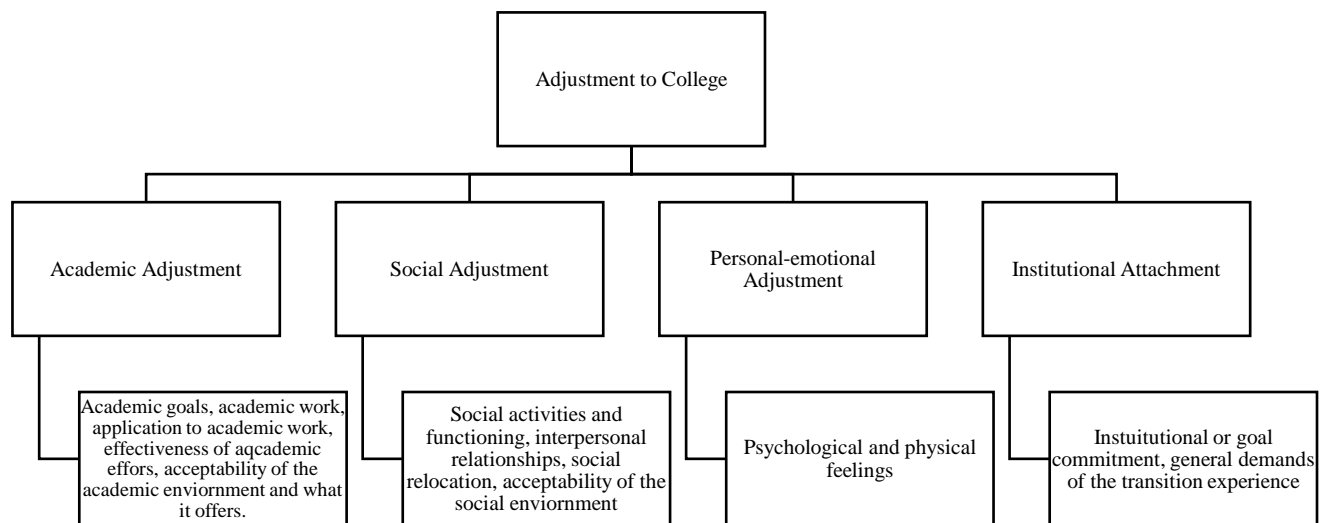
This research utilized an ex-post facto, survey cross sectional, correlational research design to examine archival data collected from colleges and universities in the Spring 2018 semester. Data included demographics that identified if students were varsity athletes and if they were diagnosed with ADHD. Data collected relating to mental health and impediments to academic performance were examined in this study. Analysis of variance (ANOVA) and logistic regression were used to analyze data.

### **Theoretical Framework**

Baker and Siryk's adjustment to college model was used as the theoretical framework to guide this study (see Figure 1). This model examines college adjustment through the four domains of academic adjustment, social adjustment, personal-emotional adjustment, and institutional attachment (Baker & Siryk, 1984; Credé & Niehorster, 2012). Academic adjustment defines college students' attitudes towards their academics including academic goals, effectiveness of academic efforts, and acceptability of the academic environment. Social adjustment examines college students' acceptability of the social environment at college. It also covers how well students integrate into social structures such as activities, interpersonal relationships, and social relocation. Personal-emotional adjustment examines any stress, anxiety, and/or physical reactions the student is having in response to college demands. Institutional attachment is defined as how emotionally attached a student is with their institution.

This model of college student adjustment fits the following study well as it pulls directly from the academic adjustment concept when examining ADHD athletes and ADHD nonathletes. Severity of mental health concerns and complexity of college life concerns are closely related to the personal-emotional and social adjustment domains of college adjustment. Overall, all

concepts examined in this study are related to institutional attachment. This study examines how ADHD athletes and ADHD nonathletes differ in terms of academic adjustment, severity of mental health issues, and complexity of college life concerns which all can be fit within Baker and Siryk's model of adjustment to college.



*Figure 1.* Baker and Siryk's model of adjustment to college. This figure visually displays the four domains of the adjustment to college model along with descriptions of the domains.

### **Limitations**

This research uses an archival dataset with the assumption that data was gathered in an ethical manner and is an accurate representation of the students who attend universities across the United States. The data comes from the National College Health Assessment (NCHA)

created by the American College Health Association (ACHA). Since the spring semester of 2000 this survey has been taken by 1.4 million students at over 740 colleges and universities across North America (ACHA, 2019). Data from the NCHA has been cited in articles, proposals, and presentations by the media, government policymakers, and public health and higher education organizations.

This study used an ex-post facto research design, limiting the researcher's ability to determine causation due to the inability to manipulate variables (Creswell, 2014). Though the design was not experimental in nature the sample size was large. Additionally, the research design employed is commonly used by other researchers in the field. An inherent limitation exists within the developed scales to measure academic adjustment, severity, and complexity. To address this, the study used existing literature and previous research when creating the scales. The current study seeks to explore the research questions listed in the next section.

## **Research Questions and Hypotheses**

### **Question One – Academic Adjustment**

To what extent do college student-athletes with ADHD differ from nonathletes with ADHD on levels of academic adjustment?

### **Hypothesis One**

College student-athletes with ADHD will have lower levels of academic adjustment than nonathletes with ADHD.

### **Question Two – Severity of Mental Health Concerns**

To what extent do college student-athletes with ADHD differ from nonathletes with ADHD on severity of mental health concerns?

## **Hypothesis Two**

College student-athletes with ADHD will experience more severe mental health concerns than nonathletes with ADHD.

## **Question Three – Complexity of College Life Concerns**

To what extent do college student-athletes with ADHD differ from nonathletes with ADHD on complexity of college life concerns?

## **Hypothesis Three**

College student-athletes with ADHD will have higher levels of complexity of college life concerns than nonathletes with ADHD.

### **Relevant Terminology**

The following terms may be useful in facilitating a clearer understanding of the proposed study:

1. *Academic adjustment*: How students have adapted to education-related requirements as measured by their feelings regarding their program, how they engage with material, and their inclination to study and put forth effort into their academics (Baker & Siryk, 1984; Credé and Niehorster, 2012).
2. *Adjustment*: The degree to which students can adapt to the challenges of college across four domains: social, academic, personal-emotional, and institutional attachment (Baker & Siryk, 1984).
3. *Complexity*: Defined by the number of students reported presenting problems.
4. *Life Stress*: An individual's psychological reactions and adaptations to major life events.
5. *Severity*: Level of mental health distress a student is experiencing.
6. *Stress*: A function of highly demanding situations coupled with an individual's limited emotional resources to effectively cope with those demands (Lazarus & Folkman, 1984).

7. *Stressor*: Events and situations that are potentially stressful because they make demands or lead to stress (Carpenter, 1992).
8. *Varsity student-athlete*: A full-time student who participates in a full-time organized competitive sport sponsored by their college or university.

### **Conclusion**

This chapter provided an introduction of the current study. First with an overview of the problem and current literature on ADHD, student-athletes, college academic and personal-emotional adjustment, and college mental health and life concerns. This chapter then discussed the research design, theoretical framework, and provided a list of relevant terms. The next chapters will provide a more detailed description of existing literature, the research design, and the results and implications of this study.

## **CHAPTER II**

### **LITERATURE REVIEW**

The purpose of this chapter is to examine literature related to adjustment to college and severity and complexity of mental health concerns in college students with attention deficit/hyperactivity disorder (ADHD). Specific focus in this literature review is placed on a subpopulation of college students, student-athletes. This chapter will begin with an overview adjustment to college with a focus on academic adjustment. Next, research on severity and complexity of college mental health concerns is covered followed by a section on ADHD. This chapter then examines student-athletes, their adjustment to college, specific mental health concerns, and research on ADHD in this population. The chapter concludes with the purpose and rationale for the current study.

#### **Adjustment to College**

The rate of overall college enrollment for young adults has increased over time. The National Center for Education Statistics (2019) reported an increase in overall enrollment from 35% in 2000 to 40% in 2017. In addition to increased academic demands, more autonomy, and a less structured academic environment, first-year students encounter other transitions and challenges related to college (Credé & Niehorster, 2012). This includes negotiating a new social environment, developing attitudes and beliefs about their institution, becoming constructive members of the college community, acclimating to new roles and responsibilities, managing separation from family and friends, and forming career decisions. To successfully navigate higher education, students often find themselves adjusting to multiple domains of institutional life that extend well beyond those that are academic in nature.

Baker and Siryk (1984), sought to create a means to measure adjustment to college. The purpose of such a measure was to serve as a source of dependent variables that could be used when examining the role of personality and environmental determinants of adjustment to college. Additionally, the authors hoped it could be used as a tool to target students who were having difficulty adjusting to college as they may benefit from interventions such as counseling services. The proposed measure, now known as the Student Adaptation to College Questionnaire (SACQ), examined overall adjustment but also contained subscales that addressed academic adjustment, social adjustment, personal-emotional adjustment, and institutional attachment. The SACQ is a multidimensional measure of student adjustment to college and is currently the most widely used measurement of college student adjustment (Credé & Niehorster, 2012).

Baker & Siryk (1984) described the domain of *academic adjustment* as students' attitudes towards academic goals and work, personal application to academic work, effectiveness of academic efforts, and the acceptability of the academic environment. In opposition to difficulties such as loneliness or homesickness, *social adjustment* refers to the acceptability of the social environment and successful integration of students into social structures of the university including activities, interpersonal relationships, and social relocation (Baker & Siryk, 1984; Credé & Niehorster, 2012). The degree to which students are experiencing stress, anxiety, and/or physical reactions in response to the demands of college is referred to as *personal-emotional adjustment*. Finally, *institutional attachment* is defined as emotional attachment and the extent to which students identify with their institution. Adjustment to college is considered multidimensional as students may adjust well in certain domains but struggle in others.



## **Academic Adjustment**

Academic adjustment indicates acclimation to academic demands reflected by students' attitudes towards their studies, academic engagement, and adequacy of their studying and academic endeavors (Baker & Siryk, 1984; Credé & Niehorster, 2012). Examples of questions in the academic adjustment subscale of the SACQ include "I am enjoying my academic work at..." "I have been keeping up to date on my academic work," "Recently I have had trouble concentrating when I try to study," and "I'm satisfied with my program of courses for this semester." In their research, Baker and Siryk (1984) found that better academic adjustment was significantly correlated to freshman year grade point average (GPA) and subsequent election into a honors society. The first year of college is often a particularly difficult period of adjustment due to the previously discussed changes and challenges. Many freshmen have more positive expectations for college than they realistically experience, particularly in the academic realm (Baker, McNeil, & Siryk, 1985). Researchers referred to this concept as the "matriculation myth" which also applies to transfer students. Several studies have linked academic adjustment to GPA (Credé & Niehorster, 2012; van Rooij et al., 2018). Those who struggle with adjustment to higher academic demands, a lower structured environment, and novel academic tasks are more likely to have poor grades on tests and assignments. Faculty and institutional support have a strong positive attachment with academic adjustment through support. Retention has been heavily research with academic adjustment. A study by Girelli et al. (2018) found that students who had stronger beliefs in their academic abilities were less likely to develop dropout intention and less intention to dropout led to better academic adjustment. Further, GPA has been shown to be a predictor of well-being thus students with lower GPAs may be adversely affected by a greater pressure to perform (Ridner, Newton, Staten, Crawford, & Hall, 2016).

One factor that can lead to a smooth transition to college is the ability to regulate study behavior as it has been linked to better academic adjustment leading to higher GPAs (van Rooij et al., 2018). Another study found that perceived control of time was significantly related to stress (Misra & McKean, 2000). Therefore, effective time management and organizational approaches buffered academic stress. Additionally, freshman who enter college with a decided academic major display better academic adjustment (Smith & Baker, 1987). Those without a major are likely to lack a sense of educational purpose, capacity to apply oneself to academic work, academic success, and satisfaction in the academic environment. Higher academic self-efficacy which is essentially persistence, tenacity, and achievement in the educational setting, has positive impacts on academic adjustment (Chemers et al., 2001; van Rooij et al., 2018). Academic self-efficacy has been directly related to academic expectations and academic performance. Students who enter college with confidence in their academic performance and have higher expectations for academic success display higher performance.

### **College Student Mental Health and Life Concerns**

A commonly reported trend in college mental health counseling is an increase in the number of students experiencing mental health concerns as well as a growing number of students seeking services (Kirsch et al., 2015). Rando and Barr (2008) found that 80% of college counseling center directors surveyed reported an increase in students with severe psychological problems and 96% reported the number of students with significant psychological problems was a growing concern. The number of students taking psychotropic medication and receiving services from counseling centers has steadily increased over time (Gallagher, 2008). The percentage of college counseling center students on psychotropic medication was 9% in 1994 which increased to 20% in 2003 and then to 26% in 2008.

## Severity

Severe problems are those that cause significant disruption to a student's ability to function within the college environment that may require mental health care beyond what a campus counseling center can provide (Sharkin, 1997). For the purposes of this study, severity examines the levels of distress for students self-reporting diagnosis or treatment for mental health disorders over the past 12 months. In this study, severity also includes self-reported current mental health functioning, treatment seeking, and overall stress.

Many professionals have suggested that psychopathology and symptom severity has increased within college counseling (Hoepfner, Hoepfner, & Campbell, 2009). However, this statement is heavily debated as most studies that report an increase in severity rely on the perceptions of college counselors with little qualitative or quantitative evidence (Much & Swanson, 2010; Sharkin, 1997). While high levels of distress have been identified in the college student population, many studies have failed to show an increase in severity over time as reported by counseling staff. For example, a study examining 12-year archival intake records by Hoepfner et al. (2009) found no increase in levels of psychopathology and symptom severity. Similarly, based on 10 years of archival data, Schwartz (2006) found that students did not become more acutely distressed over that time period. However, evidence was found that therapists perceived clients to be increasingly distressed when no actuarial basis for assessing client distress was available. Benton, Robertson, Tseng, Newton, & Benton (2003) examined archival data from a 13-year span for over 13,000 student-clients in an attempt to provide empirical evidence for an increase in severity among college students. The researchers found an increase in 14 out of 19 problem areas including relationship, stress/anxiety, situational depression, suicidal ideation, and personality disorders. While the study shows that there has

been an increase in reported problems, it did not necessarily show the same for the severity of problems.

Despite lacking evidence for an increase in severity over time, college students are still presently experiencing significant distress. One study found that severity levels of students utilizing college counseling services were only marginally lower than young people presenting in primary care settings (Connell et al., 2007). Another study found a high incidence of psychiatric disturbance in both a community mental health center at 100% and a university counseling center at 65% (Gunn, Grieve, Greer, & Thomas, 2005). University students had lower levels of severity as they reported fewer psychiatric symptoms. Gallagher (2012) reviewed trends in college counseling over the past 30 years from the National Survey of Counseling Center Directors. In addition to over 90% of counseling center directors reporting a trend towards an increase in seriously disturbed student-clients, hospitalizations for psychological reasons almost doubled between 2001 and 2011. Rates of reported crisis management also increased from 45% in 2004, to 56% in 2006, reaching 78% in 2011. Increased mental health severity in one research study was found to impact academic performance as it was associated with lower GPAs (De Luca et al., 2016).

Some of the most common severe mental health concerns within the college student population include anxiety, depression, suicidal thoughts and behaviors, and substance use behaviors. Anxiety is the top-rated concern among students seeking mental health treatment (CCMH, 2017). The Association for University and College Counseling Center Directors (AUCCCD) 2016-2017 survey found that anxiety was the highest client presenting problem at an average rate of 48.2% (LeViness et al., 2017). The Spring 2018 National College Health Assessment (NCHA) reported that 22% of participants stated they were diagnosed or treated by a

professional for anxiety in the past year (American College Health Association, 2018). In a study examining referral for psychotropic medication among students from six different universities, 26% of participants were diagnosed with an anxiety disorder (Kirsch et al., 2015). High rates of anxiety in college students are influenced by a variety of factors. In their research Jones, Park, and Lefevor (2018) found that academic distress predicted anxiety and that financial stress was significantly related to anxiety.

Depression among college students has been linked to poorer academic performance (Ibrahim, Kelly, Adams, & Glazebrook, 2013). Student vulnerability to depression may be increased by factors such as life style changes resulting in sleep and eating disturbances, financial stressors, a change in family relationships, and academic and future career worries. Depression as a presenting problem in university counseling centers is high at an average rate of 34.5% while suicidal thoughts and behaviors were at an average rate of 25.2% (LeViness et al., 2017). In one study, the number of college students presenting to a college counseling center with depression concerns doubled over a 13-year period and during that same time, the number of students reporting suicidal ideation tripled (Benton et al., 2003). In a study examining referral for psychotropic medication among college students, 50% of participants were diagnosed with a depressive disorder (Kirsch et al., 2015). Self-reported ratings of depression of students in this study suggested that depression might be a significant concern of most students regardless of a diagnosis. Approximately 70% of participants reported clinically significant levels of depressive symptomatology with 40% reporting in the very severe range. In a systemic review of studies on depression in college students, the average prevalence rate in the population is 30.6% (Ibrahim et al., 2013). This much higher than the average of 9% in the general population. It is important to note that low levels of depression have been associated with better academic adjustment (Credé

& Niehorster, 2012). Research by Acharya, Jin, and Collins (2018), examined how stressors in domestic and international students were related to symptoms of depression. Stressors for domestic students included social interaction, interpersonal issues, and academia while only academic concerns were a significant stressor for international students.

An issue closely related to depression that is of significant concern is suicide. Gallagher (2012) reported that suicide continues to be a major concern in higher education and that in 2010, 87% of the students who committed suicide never sought assistance from their campus counseling center. Suicidal ideation has also been associated with lower GPAs (De Luca et al., 2016). Keyes, Eisenberg, Perry, Dube, Kroenke, and Dhingra (2012) found that college students who screened positive for a current mental illness were at greater risk for suicidal behavior and academic impairment. The researchers also found that those with positive levels of mental health served as a protective factor against suicidal behavior and academic impairment whether or not the participant had a current mental illness. In the Kirsch et al. (2015) study, 55% of participants reported a history of suicidal thoughts and 12% reported a suicide attempt. At the time of evaluation, 14% reported suicidal thoughts.

While students themselves may not cite it as a concern, heavy alcohol use continues to be a major issue among the population and often has negative consequences that can lead to further problems. Increased substance use has been associated with lower GPAs (De Luca et al., 2016). Hingson, Heeren, Winter, and Wechsler (2005) collected data from a large sample of college students about alcohol use between the years of 1998 and 2001. College students who reported drinking at least five drinks on one occasion in the past month rose 4% between 1998 and 2001. The number of college students who reported driving under the influence rose from 26.5% to 31.4% over the course of the same years. Students reported the following statistics in 2001,

559,000 (10.5%) were injured due to drinking and 474,000 (8%) had unprotected sexual intercourse as a result of drinking. Between the years of 1998 and 2001 the rate of alcohol-related unintentional injury deaths of college students aged 18-24 rose 9%. Rates of student drinking and alcohol-related problems have not decreased over the past 15 years despite efforts to do so.

In a study examining referral for psychotropic medication among college students, 12% of participants were diagnosed with an addictive disorder (Kirsch et al., 2015). In this study, of the students who reported drinking, 20% either felt or were told they drank too much. Roughly half of the participants indicated they used illicit drugs with marijuana reported as the most commonly used at 46%. While no medication was prescribed specifically for the substance use disorder, medication was prescribed to treat co-occurring disorders like anxiety and depression. Research has suggested that underlying psychiatric symptoms like anxiety and depression are often antecedents of alcohol use (DeSimone, Murray, & Lester, 1994). Research conducted by Deykin, Levy, and Wells (1987) found that major depressive disorder in college students was associated with alcohol abuse and that the disorder usually preceded alcohol or substance abuse, suggesting they may be used as means of self-medication.

### **Complexity**

Complexity refers to a high rate of co-occurring issues (Coniglio et al., 2005). For the purpose of this study, complexity is defined as the number of concerns a student is experiencing. Regarding complexity this study examines how many disorders students were diagnosed or treated for over the past 12 months, level of stress, and if certain events were traumatic or difficult to handle in the past 12 months.

It has been proposed that perceptions of increases in severity are instead due to an increase in complexities of student problems (Gallagher, 2012; Much & Swanson, 2010). For example, students may be experiencing multiple problems such as family dysfunction, substance abuse, and changing social mores all at the same time. Thus, the issues may not be more severe but rather more complex. Furthermore, diversity among the college student population is growing to include an increasing number of students of color, students from economically disadvantaged backgrounds, and first-generation college students. These diverse students are likely to present with more complex needs and stressors. As noted, there has been an increase of students being treated with psychiatric medication thus allowing more students with psychiatric disorders to attend college.

Cairns, Massfeller, and Deeth (2010) sought to differentiate severity and complexity in their three-year span study of presenting problems at a Canadian college counseling center. They did not find any difference in severity of presenting problems, but complexity varied by year and semester for participants and was greatest during the winter semester. Research by Krumrei, Newton and Kim (2010) found that the majority of students attending counseling services reported their concerns interfered with their academic and social lives. Additionally, 42% of participants presented with concerns across multiple problem areas providing evidence for the complexity of college student concerns. The severity and complexity of emotional, behavioral, relational, and mental problems can impact academic performance (Prince, 2015).

Life stress can contribute to the complexity of college student concerns. Life stress is defined as an individual's psychological reactions and adaptations to major life events such as marriage and the death of a family member or close friend (Papanikolaou et al., 2003). Negotiating the transition to college coincides with developmental transitions that emerging



adults face including forming their own academic and social identity. Research by Conley, Kirsch, Dickson, and Bryant (2014) found that among participants in their study, the immediate transition to college is characterized by steep declines in psychological and social well-being and an increase in psychological distress. While these setbacks plateaued, they did not resolve later in the year. In another study, a significant negative relationship was found between life stress and GPAs taken at one- and two-year intervals (Lloyd et al., 1980). Three years after the stressor, no relationship was found between life stress and GPA. Garrity and Ries (1985) found that even when controlling for gender and academic readiness, life stress predicted first-year GPAs.

Stress was the second most reported client presenting problem at an average of 39.1% at university counseling centers according to the 2016-2017 AUCCCD directors survey (LeViness et al., 2017). Other research has found that as student's stress levels increase, their life satisfaction decreases (Holinka, 2015). Some specific life concerns that were noted as presenting problems and their average rates are as follows; relationship problems at 22.9%, family at 21.2%, sleep at 15.8%, loneliness at 15.5%, career at 10.5%, grief at 8.3%, and discrimination at 3.6%. College students experience stressors representing difficulties in establishing social interaction, intrapersonal habit changes, academic difficulties, and environmental changes which can influence psychological symptoms such as depression (Acharya et al., 2018).

Non-college life-events are those that occur outside of college such as death of a friend or family member, financial disruptions, and family situations (Cox, Reason, Nix, & Gillman, 2016). Non-college life-events are common among students and can impact graduation rates. Even students with just one non-college life-event are less likely to graduate on time when compared to students who do not experience them. A study by Cox, Dean, and Kowalski (2015) found that approximately 60% of the university students in their study experienced at least one

death of a friend or family member since starting college. Additionally, participants reported long-term complications from grief but were unlikely to seek assistance in the form of counseling. Another study found that grieving students often struggle in the areas academic and personal or emotional adjustment (Cousins, Servaty-Seib, & Lockman, 2015). In addition, family support seems to play a critical role in social adjustment for bereaved students, whereas high support was associated with increased social adjustment and low support was associated with decreased social adjustment.

Relationships can be a significant source of distress for college students as they are adjusting from their primary sources of support to navigating new relationships. Research has found significant relationships between young adult adjustment and perceived family conflict whereas adjustment was measured by ego identity status and psychological distress (Nelson, Hughes, Handal, Katz, & Searight, 1993). Individuals from low-conflict families demonstrated higher levels of adjustment than those from high-conflict families. According to research on college stress and sense of coherence, female college students experience greater stress from quality of friendships, love relationships, and relationships with parents (Darling, McWey, Howard, & Olmstead, 2007). While emotional health affected sense of coherence for females, family relationships had the largest effects on sense of coherence for males. Furthermore, one study found that mutual need satisfaction led to more positive romantic relationships among college students (Eryilmaz & Doğan, 2013). In this research, the combination of need satisfaction with romantic relationship quality increased levels of subjective well-being.

Sleep is another top concern with some research finding that sleep is the strongest predictor of well-being among college students (Ridner et al., 2016). In a 3-year longitudinal study on sleep and psychosocial functioning in college students, Tavernier and Willoughby

(2014) found that interpersonal adjustment, friendship quality, and academic achievement were predictors of sleep quality over time. Psychosocial functioning had the strongest association with sleep quality where more negative intrapersonal adjustment predicted more sleep problems and vice versa. Better sleep quality over time was predicted by higher academic achievement. Academic achievement significantly predicted shorter sleep during the week suggesting high achievers may sleep less to study longer. Interestingly, higher achievement was predictive of better overall sleep quality. Over time, higher academic achievement predicted better intrapersonal adjustment which in turn predicted better sleep quality.

Concerns revolving around finances can be particularly stressful. In one study, 62.5% of participants stated that their financial situation was at least “sometimes stressful” and 7.5% stated it was “always stressful” (Jones et al., 2018). Financial stress was also significantly correlated with academic stress. By the end of their college career, the goal for many students is to pursue a professional career, a topic which can also cause significant stress. One study found increases in career and life stress were associated with an increase in negative career thinking (Bullock-Yowell, Peterson, Reardon, Leierer, & Reed, 2011). These types of thoughts were associated with low levels of decidedness and satisfaction with career choice. Other research has found that dysfunctional career thoughts and occupational indecision are related to symptoms of depression (Walker III & Peterson, 2012).

### **ADHD**

Historically, ADHD is not well documented, George Still is credited with describing ADHD symptoms in 1901 (Palmer, 2002). He described children presenting problems of overactivity, inattention, and deficits in ‘volitional inhibition.’ In 1937 Charles Bradley gave children a stimulant, Benzedrine, and noted a marked improvement in behavior and school

performance in approximately half of the children (Bradley, 1937). In the 1960s, hyperkinetic reaction of childhood appeared in the second edition of the *Diagnostic and Statistical Manual (DSM-II)* (American Psychiatric Association, 1968) and in the 1980s was re-categorized to ADHD in the *DSM-III* (American Psychiatric Association, 1980). In the past, ADHD was considered a socially learned behavioral disorder where environmental influences such as parenting played a role (Parr, 2011). During this time, treatment emphasized behavioral strategies aimed at changing parents or caregivers. Individuals with ADHD were considered to have moral failure. Modern day research has proven such beliefs false and has shown that ADHD is due to problems in the frontostriate circuits of the brain which are involved in executive functioning. Executive functioning allows for organization of behavior across time through a neurocognitive process which includes the ability to inhibit motor, verbal, cognitive, and emotional activities. When problems arise in these areas, it can lead to deficits in working memory, verbal working memory, planning and problem solving, and emotional self-regulation. Another common belief prior to the 1970s was that children with ADHD would outgrow the disorder by puberty (Barkley, Fischer, Smallish, & Fletcher, 2002). However, longitudinal research found that while the expression of ADHD symptoms may change over time, ADHD is a disorder that can exist in adults.

ADHD is listed under the neurodevelopmental disorders section in the *DSM-5* and is characterized by “a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development” (American Psychiatric Association, 2013). Inattentive symptoms are behavioral and may be evidenced by difficulty remaining focused, disorganization, and wandering off task. Hyperactivity signifies excessive motor activity such as extreme restlessness and excessive talking. Impulsivity occurs when hasty actions, which can be

potentially harmful to the individual, take place without forethought. As a diagnostic requirement, the *DSM-5* states that ADHD symptoms must be present in individuals prior to age 12, which was a change from the *DSM-IV* version (Stewman et al., 2018).

ADHD diagnosis relies on comprehensive medical and psychiatric evaluation (Kutcher, 2011). It is important to gather a clinical history which can be done by self-report and symptomology reports of first-hand experiences from observers such as family members, caregivers, and teachers. Reports from observers are included so as not to rely solely on self-reports which could be bias (Jiang & Johnston, 2012). In fact, in adults with ADHD, observers report higher ADHD symptomology than adults report for themselves. When compared to self-reports, observer reports are more strongly related to functioning in major life activities and competence.

According to the *DSM-5*, ADHD affects approximately 2.5% of the adult population (American Psychiatric Association, 2013). However, rates may actually be higher, due to adults underreporting symptoms of ADHD experienced in childhood (Barkley et al., 2002). While commonly diagnosed in childhood, some individuals may not receive an ADHD diagnosis until young adulthood or adulthood (Parr, 2011; Perrin & Jotwani, 2014; Stewman et al., 2018). Those with primarily inattentive symptoms may be more likely to go unnoticed for much longer. When the individual is under intense academic demands which are far too great and there is a loss of outside regulation, such as that provided by a parent, symptomology appears more overt. Situations such as these are common in the college environment which can be one reason why ADHD is not diagnosed until the individual is in college.

Treatment of ADHD usually falls into two types, behavioral/psychosocial interventions and medication (Stewman et al., 2018). The general consensus is that treatment should include

psychosocial interventions either with or without medication. Effective treatment can improve quality of life and academic performance (Biederman, Monuteaux, Spencer, Wilens, & Faraone, 2009; Parr, 2011; Perrin & Jotwani, 2014). Treatment has also been shown to decrease substance abuse, driving errors, and the prevalence of comorbid psychological disorders.

Behavioral/psychosocial interventions may include, cognitive behavioral therapy, individual education plans, parent teaching/training, caregiver support, and psychoeducation concerning ADHD (Stewman et al., 2018). Behavioral interventions are often provided by therapists and can aid an individual in creating a more structured environment and lifestyle for themselves.

Medications have become a common treatment for ADHD and include stimulants and nonstimulants. It is estimated that 56% of individuals with ADHD receive drug therapy (Perrin & Jotwani, 2014). Stimulant medication is often a popular form of treatment due to its tendency to work quickly, typically within an hour, with effects lasting up to 12 hours (Kutcher, 2011).

It is worth briefly exploring societal perceptions of ADHD as these beliefs can impact the lives of individuals with ADHD. In their study of college students with ADHD, Stamp et al. (2014) found that 58% of participants reported that most people trivialize ADHD or do not see it as a real disorder. It was most often seen as a will power problem with the individual labeled as “lazy.” Participants also reported being told that they should “just try harder” and overcome ADHD. In the academic setting, some students experienced teachers suggesting that ADHD symptoms, such as disorganization, were an act of defiance. Students with ADHD have also had their intelligence questioned due to their diagnosis. When society is unclear about how much behavior is in the control of the individual with ADHD it also causes confusion and defeat within the individual themselves rendering them unsure of how to defend their behavior. Inaccurate

societal beliefs and stigma make it difficult for individuals to disclose their diagnosis out of fear of judgement or misconceptions.

Those with ADHD have been found to have higher rates other psychiatric conditions including depression, anxiety disorders, substance use disorders, bipolar disorder, oppositional defiant and conduct disorders, and learning and language disorders (Stewman et al., 2018). It has been suggested that ADHD may be overlooked in some individuals due to frequently co-occurring conditions. Indeed, this does add to diagnostic and management challenges (Kutcher, 2011). When diagnosing ADHD, it is important to ensure that symptoms are not due to another disorder including autistic spectrum disorders, mood disorders, and learning or language disorders. As an example, bipolar disorder can be challenging to distinguish due to overlapping symptoms of impulsivity, hyperactivity, and aggression. However, mania while present in bipolar disorder is not present in ADHD. Anxiety is often concurrent with ADHD and cognitive behavioral therapy may be especially helpful for these individuals. Those with co-occurring oppositional defiant disorder or conduct disorder may display more aggression and impulsivity than typically seen in ADHD. Stimulant medication has been found to be helpful in these cases.

In one study on college students with ADHD, it was found that those students with ADHD self-reported significantly higher anxiety and depressive symptoms compared to students without ADHD (Nelson & Liebel, 2018). The same study found that parent reports of anxiety and depression in students were higher than self-reports. Because ADHD is an invisible disorder, one that cannot be visually identified, other people may not understand the extent of how much the disorder impacts the life of the person living with it. This leads to reported frustration in individuals with ADHD (Stamp et al., 2014). Students reported feelings of depression or discouragement related to efforts to cope with ADHD.

Significant impairment or distress may occur in multiple environments such as school, work, home, or extracurricular activities (Parr, 2011). ADHD may also cause distress in relationships for both the affected individual and the other person in the relationship such as parents, siblings, or spouses. Those with ADHD have been found to have decreased educational attainment, increased risk of divorce, and decreased employment status and income when compared to those without ADHD. They are at risk for reduced academic and occupational performance, low self-esteem, deficits in social skills, and peer rejection (Lee, Dunn, & Holt, 2014).

### **ADHD and College Students**

ADHD is the fastest growing disability category on college campuses (U.S. Government Accountability Office 2009). The number of undergraduate students with disabilities reporting ADHD was 11.6% in 2004 and rose to 19.1% in 2008. Between 2% and 8% of college students report clinically significant symptoms of ADHD (Weyandt & DuPaul, 2006). In a study examining referral for psychotropic medication among students from six different universities, 12% of participants were diagnosed with ADHD (Kirsch et al., 2015). Because ADHD impacts executive functioning, it can make transitioning to college difficult as the environment often demands many of the skills those with impairments in executive functioning lack (Stamp et al., 2014). Examples include novel problem solving, persistence, time management, attention to details, remembering important events, tolerating a high level of frustration, and effective prioritization and organization in order to manage multiple classes, tasks, and deadlines.

Existing literature suggests that adjustment to college is often more difficult for students with ADHD due to the specific nature of the disorder (Blase et al., 2009; Meaux, Green, & Broussard, 2009). When matched with a comparison group on age, gender, and self-reported



GPA, students with ADHD had significantly lower scores on all subscales of the SACQ including the total adjustment score (Shaw-Zirt, Popali-Lehane, Chaplin, & Bergman, 2005). In this study, those with ADHD also had lower self-esteem and social skills which were related to overall adjustment scores. Students who have primarily inattentive symptoms of ADHD may experience more difficulty when adjusting to college than those with hyperactive symptoms (Norwalk, Norvilitis, & MacLean, 2009). Higher levels of ADHD symptoms were significantly related to lower levels of academic adjustment. Academically, college students with ADHD have been found to have lower grade point averages, are more likely to be on academic probation, and report more academic problems when compared to college students without ADHD (Gormley et al., 2016; Heiligenstein et al., 1999). Specifically, first-year GPA seems to be heavily impacted with effect sizes lessening over time. Along with lower GPAs, students diagnosed with ADHD were more concerned about their academic performance than those without ADHD (Blase et al., 2009).

On the other hand, studies on psychological impairment in students with ADHD have mixed results with some showing no difference from students without ADHD and some showing those with ADHD faring worse (Heiligenstein et al., 1999; Richards, Rosén, & Ramirez, 1999). For example, Heiligenstein et al. (1999) found participants with ADHD did not report greater problems with depression, anxiety, substance use, or relationships when compared to the control group. However, it is important to note that ADHD students with comorbid disorders were excluded from this study. On the other hand, Richards et al. (1999) found that ADHD students reported significantly higher rates of somatization, obsessive compulsive disorder, interpersonal sensitivity, depression, anxiety, hostility, paranoid ideation, and psychoticism when compared to the control group. Blase et al. (2009) found that those diagnosed with ADHD reported higher

levels of emotional distress, social concerns, rated themselves less emotionally stable, had higher rates of alcohol use, and were more likely to smoke and use marijuana. However, even though those with ADHD were more likely to struggle and have their struggles remain relatively stable over time, many were free of significant adjustment difficulties.

Students with ADHD have the unique challenge of losing their structured support systems, such as parents, during the transition to college where independence and self-responsibility increase. Students with ADHD report that keeping their diagnosis a secret in college generally hinders them (Meaux et al., 2009). Additionally, the less educated they were about their disorder, the more difficulty they experienced. This tended to foster feelings of frustration and confusion. A separate study by Stamp et al. (2014) found that a majority of participants reported that learning more about their disorder impacted their performance and helped them accept their strengths and limitations. Self-managing the symptoms of ADHD was reported to be a major challenge for academic success due to poor time management and organizational skills, lack of focus, failure to complete work on time, low motivation, poor study skills, and difficulty sleeping and waking up (Meaux et al., 2009). Rabiner et al. (2008) found that freshman with ADHD reported more symptoms of depression and academic concerns compared to non-ADHD freshman even when controlling for personality traits. There was a negative correlation between inattentive symptoms and conscientiousness, emotional stability, and agreeableness. Inattentive symptoms were significant predictors of academic concerns and depressive symptoms as hyperactive-impulsive symptoms were not related to any of the adjustment outcomes in this study. Academic difficulties may also be tied to reasons students with ADHD do not seek help from faculty, peers, and disability support services (Stamp et al., 2014). Students reported feeling ashamed to ask for help or blamed themselves for their

difficulties fearing their teachers would judge them or think they were trying to get out of working hard. Avoidance was a highly used method of coping with ADHD. Often due to embarrassment, students avoided class, teachers, learning specialists, tutors, and disability support staff. Avoidance escalates in the college environment where there is less structure and accountability. Thus, students with ADHD must learn to navigate the traditional elements of adjustment to college while simultaneously self-managing their ADHD and advocating for themselves when needed. If other stressors or mental health concerns are added on top of this, it can further complicate life for the college student with ADHD.

### **Student-Athletes as a Specialized Campus Population**

Approximately 400,000 National Collegiate Athletic Association (NCAA) student-athletes compete annually (Wolanin, Hong, Marks, Panchoo, & Gross, 2016). Often, student-athletes are described as an “at-risk” population in terms of overall stress and mental health distress due to demands connected to their athletic and student status (Cosh & Tully, 2015; Ferrante & Etzel, 2009; Rao & Hong, 2016). Student-athletes transitioning to college lead demanding lives that include balancing their athletic demands such as practice, games, training, and travel along with academic demands. Because they often see college as a continuation of their high school experience, student-athletes may not be prepared for this dual transition (Papanikolaou et al., 2003).

The number of stressors athletes face is quite large. Arnold and Fletcher (2012) identified 640 organizational stressors unique to an individual’s sport participation in the following domains: leadership and personnel, cultural and team, logistical and environmental, and performance and personal. Organizational stressors can be pervasive and prevail throughout an individual’s sport experience (e.g. stressors from coach) and manifested directly or indirectly,

while others are more peripheral to an individual's sport experience (e.g. lack of visible security). Competitive stress is often seen in athletes and maybe be experienced prior to competition, when an athlete anticipates inadequate performance, during competition when the current performance is perceived as inadequate and following competition when the performance is interpreted as inadequate (Papanikolaou et al., 2003). Student-athletes experience stressors outside of competition but still related to sport participation including relationships and interpersonal demands in sports, athletic career, and performance development (Mellalieu et al., 2009). Many freshmen lose their "star status" from high school as they enter college and are no longer travelling or participating in their sport at the rates that they were before (Papanikolaou et al., 2003). In addition, they don't receive as much attention from the head coach. Difficulty with these adjustments can lead to increased stress. Loneliness, frustration, homesickness, self-doubt, and feelings of not being cared about are common in freshman athletes (Lubker & Etzel, 2007). Other studies have found that athletic participation eased loneliness and stress partially due to the social networks created by sports teams (Miller & Kerr, 2002).

Some student-athletes may experience mental health issues not limited to eating disorders, depression, substance abuse, gambling, suicide, attention deficit disorder, learning disorders, and anxiety (Putukian, 2016). Further, this population is at high risk for injury which is correlated with a number of mental health disorders and potential termination of athletic career (Rao & Hong, 2016). The idealization of athletes often leads health care professionals to deny the existence or significance of psychiatric symptoms (Reardon & Factor, 2010). Symptoms may be difficult to recognize as they can be confounded by normal athletic behaviors such as meticulous attention to diet and relative hyperactivity. Student-athletes may also be less open about stressors and mental health concerns due to stigma in the athletic environment to not

appear “weak.” It is important to recognize that athletes may obtain high levels of success despite living with a psychiatric disorder. Athletes may also choose the athletic environment to cope with a psychiatric disorder. On the other hand, psychiatric disorders can be worsened by sports participation.

### **Student-Athlete Adjustment**

Research indicates that college student-athletes face different stressors when compared to peers who do not participate in varsity sports. Athletes are less motivated to perform academically than their nonathletic peers and have been found to prioritize sport over educational attainment (Cosh & Tully, 2014; Lucas & Lovaglia, 2002). At times student-athletes have described their academic goals as to “just pass” which can restrict their future educational opportunities. Student-athletes have reported significant stress due to scheduling clashes between their athletic demands, such as practice times, and scheduled class meeting times (Cosh & Tully, 2015). When students had to miss training sessions due to educational commitments, they became stressed about possible nonselection and decreased performance due to missed training. Additional stress occurred when competitions took place during peak exam time. Student-athletes reported particular difficulty studying while traveling along with a lack of support to catch up on missed material. Often, they felt as though they had to sacrifice the quality of their academic work due to athletic demands. Fatigue due to sports participation lead to reported difficulty in class concentration and difficulty completing assignments and tests. Coaches who are unwilling to display flexibility for academic demands have been found to be a significant stressor. Coaches have been reported to expect student-athletes to attend extra training sessions regardless of academic commitments such as lectures and tutor sessions. Student-athletes reported these time commitments were too demanding for them to successfully complete their

study requirements which caused significant stress. Extreme time demands led to reported fatigue from lack of sleep due to completing assignments.

Poor academic performance can lead to lower rates of graduation in the student-athlete population (Papanikolaou et al., 2003). Reasons for low rates of graduation include questionable recruiting practices, admitting academically unqualified and underprepared students, eligibility requirements, and time commitments of sport. To remain eligible for participation in athletics, student-athletes must maintain their school's GPA standards and complete certain percentages of coursework by each year of college. If eligibility is at risk, so is the student's participation in the sport along with any financial assistance from athletics. Many freshmen become frustrated when they realize they are expected to attend class, write papers, and complete assignments along with meeting their athletic obligations to remain eligible. The classroom can become an especially stressful place as some athletes have never learned the student role and lack skills such as study strategies, classroom behavior, time management, and how to solicit help. While their athletic time is structured for them, the remainder of their time is not and thus they may struggle with managing this free time. Athletes may choose avoidance as a response to academic stress. Examples include not attending class, studying, or turning in assignments, acting as though they don't care about their performance, and complaining about professors. This response can threaten both their academic and athletic careers.

### **Student-Athlete Mental Health Concerns**

Due to their dual roles, student-athletes have some life concerns that are different from the average college student. This can include pressure from peers, coaches, and parents; failure to meet expectations of performance; inability to participate in sport due to illness or injury; and termination of an athletic career (Rao & Hong, 2017). College athletes frequently derive their

identity from their sport as a majority of their time is spent in the athletic environment. In addition to regularly being surrounded by other athletes, their athletic identity is even more solidified as they are often recognized by their peers as an athlete on campus (Weigand, Cohen, & Merenstein, 2013). Student-athletes have also reported perceived barriers to counseling such as time to seek services and social stigma (Lopez & Levy, 2013). On the other hand, leadership in the athletic population is associated with a decreased interest in counseling for social and emotional concerns (Eiche, Sedlacek & Adams-Gaston, n.d.).

While student-athletes can experience life concerns like their peers they may differ in certain ways due to the dual demands placed on them. Student-athletes have reported financial stress often associated with competition and travel (Cosh & Tully, 2015). Because of their time demands student-athletes are highly unlikely to work for pay or work enough hours to achieve any financial comfort. Compared to their nonathletic peers, student-athletes report having more responsibilities, less time for sleep, and more stress and conflict with a boyfriend's or girlfriend's family (Wilson & Pritchard, 2005). Student-athletes report experiencing physical and mental fatigue which impacts both educational and athletic commitments (Cosh & Tully, 2015). Physical fatigue can impact the athletes' ability to train for their sport.

It is approximated that 40-50% of collegiate athletes sustain at least one athletic injury resulting in one or more sessions of time loss during their college years (Meeuwisse & Fowler, 1988). Limiting team participation or ceasing it all together due to injury may cause cognitive, behavioral, and emotional distress for the student-athlete. Feelings such as anger, depression, isolation, and anxiety are commonly experienced during injury (Udry, Gould, Bridges, & Beck, 1997). At this critical point in time, an athlete's social structure and concept of identity and self-worth may be impacted by (Rao & Hong, 2017). Further exacerbating the situation, athletes are

less comfortable discussing the psychological impacts of their injuries with health care providers and would rather focus on the injury itself. Injured athletes may restrict their caloric intake believing they 'don't deserve' to eat which can trigger an eating disorder (Putukian, 2016). Narcotics and other substances may be used to self-medicate in order to control resulting depression. Resulting depression may trigger suicidal ideation.

Challenges common with injuries include a significant loss of time from sports participation and sometimes unplanned sports retirement (Putukian, 2016). Concussions can be particularly taxing psychologically for student-athletes as there is no timeline for recovery. While injuries like broken bones or torn muscles generally have a predicted recovery timeline, concussions have an unknown factor. Additionally, concussions require athletes to engage in cognitive and physical rest which can be a significant life change. The inability to exercise can be difficult as many athletes use that as an outlet to handle stress. Injuries can affect student-athletes on an academic level as they may have to take time away from their studies due to factors such as surgery or recovery.

In their research, Cosh and Tully (2015) found that of all reported stressors, coaches were the most important and difficult stressor student-athletes encountered. This was largely due to coaches lacking flexibility regarding scheduling associated with educational. When coaches assigned sports related commitments, they were unwilling to make exceptions for educational commitments students had thus causing a significant amount of stress for the student-athlete. Research conducted by Baker, Côté, and Hawes (2000) examined coaching behaviors and sport anxiety. They found that coaching behaviors such as yelling and using fear and intimidation, were positively related to four forms of sport anxiety: total anxiety, somatic anxiety,



concentration disruption, and worry. Athletes reporting more negative personal rapport behaviors had higher levels of sport anxiety.

Emotional abuse is the most common form of abuse perpetrated by coaches (Stirling & Kerr, 2008). Emotional abuse is likely to occur between a coach and athlete due to the inherent power differential that exists in the relationship and to some extent because it is a part of the college athletic culture (Roxas & Ridinger, 2016). College coaches have power over student play time, scholarship money, transfer opportunities, and the quality of their day to day lives.

Emotional abuse can impact a student-athletes' well-being and is correlated with depression, maladaptive eating behavior, anxiety, and social withdrawal (Stirling & Kerr, 2008).

Emotionally abusive behaviors manifest in three ways. Physical emotionally abusive behaviors include aggressive acts such as hitting and throwing objects at or in the presence of an athlete. Second, verbal behaviors include yelling and shouting at an athlete, belittling, name calling, and degrading comments. Third, denial of attention and support included behaviors such as being ignored and being excluded from practices. Criticism and yelling behaviors have led to reported low mood and decreased motivation in student-athletes while ignoring and insulting behaviors have led to reported low self-efficacy, anger, low self-esteem, poor body image, and anxiety (Stirling & Kerr, 2013). Negative training effects from abusive coaching include reduced enjoyment, impaired focus, and difficulties with skill acquisition. Further, poor coaching or an uncaring attitude towards players was associated with motivation for sport in athletes (Gearity & Murray, 2011). This style of coaching added to lower self-perceptions of ability and worth. Such feelings may lead to a decrease in performance, displaying less effort or persistence, and difficulty controlling emotions.

Not only do student-athletes have to navigate relationships with coaches, they must also work with personnel who manage and support their participation in sport such as trainers, academic advisors, and tutors (Arnold & Fletcher, 2012). If conflict emerges in these relationships and is unresolved, it can increase stress and anxiety. Teammates may also be a source of stress based on individual personalities, attitudes, roles, and cultural norms.

Failure to meet performance expectations can cause the athlete to question their identity and self-worth (Rao & Hong, 2017). As they begin their college athletic career, it may be the first time they have to deal with their physical limitations as they are often pushed more than they were in high school (Papanikolaou et al., 2003). Ultimately, some student-athletes discover that they can be easily replaced. Overall, 92% of student-athletes never become professional athletes. Though this may be a threat to their overall athletic identity, they still must prepare for “life after sports.”

It is not uncommon for student-athletes to feel as though they are treated like children due to the extreme structure of their athletic schedules (Papanikolaou et al., 2003). Through qualitative research, student-athletes have reported that coaches have fostered feelings of lack of control (Kimball & Freysinger, 2003). Perceptions of autonomy and identity shifts can occur once student-athletes commit to universities and sign contracts with these institutions. Relational autonomy acknowledges that individual’s self-concepts have a social component which can be influenced by relationships, mutual dependencies, and power dynamics (Christman, 2004). Since student-athletes are “socially embedded” in their environment their reasons for motivation are tied to their teammates, coaches, and the structure of collegiate sport. This can make it difficult to discern student-athletes’ actual desires from those influenced by the culture of the team. However, one study by Kimball (2007) found that caring, trusting, committed, and

respectful relationship that student-athletes develop with their teammates, families, God, and coaches form many of the decisions they make. They could be positive and increase effort and motivation or detrimental to autonomy through coerced behaviors such as drinking and hazing. Student-athletes have described a lack of autonomy due to coach control, academics, sponsorship, power dynamics, and lack of recognition of individual differences. However, they often accept this lack of autonomy because they agreed to a restrictive lifestyle.

As previously reviewed, mental health is a major concern for college students and extends to the student-athlete population. Existing mental health diagnoses can be exacerbated by stress and stressors. Stressors not appropriately managed can lead to mental health concerns and unhealthy ways of coping such as substance abuse. Higher rates of alcohol abuse are found in athlete populations versus nonathlete populations (Nattiv & Puffer, 1991; Nelson & Wechsler, 2001; Rao & Hong, 2017; Wechsler et al., 1997). Further, as athletic participation increases so does alcohol consumption (Nattiv & Puffer, 1991, Wechsler et al., 1997). Student-athletes are more likely to engage in risky behavior that is detrimental to their health such as binge drinking when compared to their nonathletic peers (Nelson & Wechsler, 2001; Wechsler, Davenport, Dowdall, Grossman & Zanakos, 1997). In their study of college students from 104 universities, Wechsler et al, (1997) found that 61% of male athletes and 50% female athletes engaged in binge drinking. The same study found that 43% of males and 36% of females not involved in athletics engaged in binge drinking. The student-athletes had several unique social factors associated with binge drinking including a high level of importance placed on parties and sports, having five or more close friends, spending a large amount of time socializing, and parental alcohol use habits. Despite reporting a higher level of exposure to educational efforts about alcohol, athletes were more likely than other college students to engage in binge drinking. Those

receiving education were not less likely to engage in binge drinking when compared to those who did not receive education. Consistent with research in the general college student population, student-athletes tended to perceive that their teammates consumed more alcohol than they did individually (Thombs, 2000). They also believed the typical college student consumed more alcohol than their teammates.

Research conducted by the NCAA on 23,028 student-athlete in 2017 found that 77% of student-athletes surveyed reported drinking alcohol in the past year and 42% reported engaging in binge drinking (National Collegiate Athletics Association, 2018). Consequences of drinking included 52% of participants reporting a hangover, 28% forgetting where they were or what they did, 25% doing something they later regretted, 23% had unprotected sex, and 21% experienced interrupted or loss of sleep. Division III athletes had the highest rates of alcohol use at 81% followed by Division I at 75% and Division II at 74%. Rates of use of other substances within the past year included marijuana at 25%, spit tobacco at 13%, cigarettes at 11%, and cocaine at 4%. All other substance use rates were 2% or lower. A study examining sudden death in U.S. college athletes reported that 12% of 118 non-cardiovascular disease deaths were drug related (Maron et al., 2014). It was also noted that susceptibility to cardiovascular events could have been influenced by college risk factors such as increased exposure to alcohol and drugs. Substance use and abuse is can be commonly seen in student-athletes with injuries who may also be experiencing psychological distress (Putukian, 2016). Student-athletes who abused alcohol have been found to have higher levels of depressive and psychiatric symptoms (Miller, Miller, Verhegge, Linville, & Pumariega, 2002). As severity of depression and general psychiatric symptoms increase so does alcohol misuse.

A common misconception is that athletes may be at decreased risk for mental health disorders like depression due to increased levels of exercise (Wolanin et al., 2016). However, data suggest that athletes are not immune to or at decreased risk for depression. Research on the topic of depression in student-athletes is somewhat mixed however, prevalence rates of the disorder in the population range from 15.6-21% (Proctor & Boan-Lenzo, 2010; Yang et al., 2007). Storch et al. (2005) conducted early research on athletes and depression. Through their study they found that female athletes experienced more depressive symptoms, social anxiety, and non-support when compared to male athletes. In their study of 257 Division I NCAA athletes, Yang et al. (2007) found that 21% of participants indicated the prevalence of symptoms of depression. This study found that female and freshman student-athletes experienced more symptoms of depression. Finally, there was a high correlation between symptoms of depression scores and anxiety scores within the population. The authors suggested that the expectation to successfully meet academic and athletic standards along with various time commitments associated with these roles caused added stress. Stress caused by this dual role demand in turn can affect overall health and well-being in the student-athlete.

Armstrong and Oomen-Early (2009) found that athletes had significantly lower levels of depression when compared to nonathletes. However athletic status was not a statistically significant predictor of depression when compared to variables such as gender, levels of self-esteem, social connectedness and rested sleep. Lower levels of self-esteem and social connectedness were predictive of higher levels of depression. Female participants in this study had higher levels of depression when compared to male participants. Results also found days per week of rested sleep was a significant predictor of depression. Only 5.3% of participants reported getting rested sleep six to seven days each week while 19.4% reported feeling rested zero to one

day(s) a week. Wolanin et al. (2016) studied depression symptoms in a single cohort of student-athletes over the course of three years. They found a 23.7% prevalence rate of clinically relevant levels of depression and a 6% prevalence in the moderate to severe range. This suggests that depressive symptoms are fairly common in college athletes. In fact, these rates are not too different from the regular college student population (Ibrahim et al., 2013). The 6% prevalence rate is also consistent with the rate of major depression in the adult population. Consistent with previous research the Wolanin et al. (2016) study also found a higher rate of depressive symptoms in female athletes.

When compared to retired college student-athletes, current student-athletes reported higher levels of depression (Weigand et al., 2013). The prevalence rate of depression was 17% for the current college athletes and 8% for the retired college athletes. The authors speculated that lower levels in retired athletes may be because they are no longer at risk for overtraining and do not have pressure to perform every week. Injured student-athletes tend to report higher levels of depressive symptoms versus non-injured athletes (Putukian, 2016). Yang et al. (2007) found that athletes with sports-related injuries had 1.64 greater odds ratio of being depressed when compared to those who did not. Elite athletes may also be at higher risk for depression than their less elite peers (Putukian, 2016). This could be due to even more pressure to perform and “fame status” that may be achieved as a star performer. Performance failure has also been associated with depression in student-athletes (Yang et al., 2007). The strongest predictors of depression in athletes include being female, having low self-esteem, decreased social connectedness, and decreased sleep

Suicide is the fourth leading cause of death in college student-athletes (Rao & Hong, 2016). However, due to inconsistent reporting, levels could be even higher. Between the years of

2002 and 2011 causes of sudden death in U.S. college athletes were assessed from various databases (Maron, Haas, Murphy, Ahluwalia, & Rutten-Ramos, 2014). Of 182 sudden deaths, 118 were due to reasons other than cardiovascular disease. Of these 118, 17% were due to suicide which included gunshot trauma or hanging. Male and African-American athletes appear to be at increased risk for suicide (Rao & Hong, 2016). Football athletes have the highest rate of suicide. While female athletes are less likely to complete suicide, they are more likely to report depression. Athletes with severe injury show a greater risk for suicide (Putukian, 2016).

Sport anxiety is often broken down into two forms, state anxiety or trait anxiety (Baker, Côté, & Hawes, 2000). State anxiety encompasses an emotional state made up of fear or apprehension while trait anxiety is a predisposition to situations that are perceived as potentially threatening with responses in the form of state anxiety. Further, trait anxiety is broken into cognitive anxiety and somatic anxiety. Cognitive anxiety is psychological in nature characterized by feelings of worry and outcomes and use of negative mental imagery. Somatic anxiety is physiological in nature and includes factors such as increased heart rate and perspiration. Anxiety in athletes can significantly impact sport performance and self-confidence.

Student-athletes are 2 to 3 times more likely than their non-athlete peers to develop characteristics of eating disorders (Nagel, Black, Leverenz, & Coster, 2000). Sports that emphasize low body weight are often detrimental for female athletes who try to maintain unrealistic body weights or fat percentages. In a study of 695 college athletes, 3% met the criteria for anorexia nervosa and 21% met the criteria for bulimia nervosa. One research study on female student-athletes, found a moderate correlation between perceived coach pressure to lose weight or maintain low body weight and disordered eating behaviors (Coker-Cranney & Reel, 2015). In the study 28% of the participants believe that body weight and appearance was important to their

coach and 25% reported that their coach encouraged them to drop weight. White female athletes may be the subpopulation most at risk as they reported significantly lower self-esteem and higher rates of disturbed eating attitudes and behaviors compared to Black female, Black male, and White male athletes (Johnson et al., 2004).

### **Student Athlete ADHD**

ADHD is commonly examined in the ways it negatively impacts the individual. However, it has been suggested that ADHD has some benefits for student-athletes (Stewman et al., 2018). Motor function is not impaired in most students with ADHD and sports may be an outlet for excess energy and the need to be active (Parr, 2011). The athletic environment can be an emotional and physical outlet for coping with symptoms of ADHD. Athletes have reported the ability to hyperfocus on enjoyable activities, thus giving them the ability to block out distractions during competitive events. Because of the impulsivity that may be present in ADHD athletes, they can often make quick and reactionary decisions which can increase positive reinforcement in the athletic environment (Perrin & Jotwani, 2014; Stewman et al., 2018). Unlike the academic environment which often contains negative feedback for those with ADHD, the athletic environment can be a place where success is achieved. Indirectly, sports participation can aid in learning behavior control (Kreher, 2012). Respect for authority figures may also be learned through rules of conduct that are present in the athletic environment. Athletes with ADHD and anxiety may experience an increase in willingness to take risks as well as the ability to overcome their fears and anxieties. While the athlete with ADHD may excel in sports due to some symptoms, the athletic environment in turn may help curb some symptoms of the disorder.

Student-athletes, however, may not experience the same type of success or positive reinforcement in the classroom (Parr, 2011). Student-athletes have described high school as



something they needed little effort to pass. Although symptoms of inattention, disorganization, distractibility, and difficulty maintaining academic effort may have been present their entire life, they may not become more overt until they are in a more challenging academic environment like college. Additionally, elite or “star” athletes may have been automatically passed in high school classes due to their athletic ability even though their academic performance was insufficient.

ADHD treatment in student-athletes is important to manage symptoms and increase functioning. When considering treatment options, primary care providers should make individualized treatment plans considering the nature of impairing symptoms, presence of comorbidities, and any prior response to medication (Perrin & Jotwani, 2014). For the student-athlete, coordinated care involving all stakeholders including parents, athletic trainers, coaches, and teachers may be helpful. Behavioral interventions can be beneficial in structuring the athlete’s environment. Student-athletes can also be taught strategies for self-management such as time management, effective planning, organization, and avoidance of distractions. A predictable schedule and structured clear expectations of athlete conduct are helpful in ADHD management (Kreher, 2012). Identifying strengths and challenges can be helpful for athletes, trainers, and coaches. Part of behavioral interventions may also include the use of positive reinforcement and consistent loss of privileges when called for. At the same time, it is important to avoid excessive criticism and highlighting failures, especially for those with comorbid anxiety.

Medication is another form of treatment that can be utilized. One major concern about medication treatment in the ADHD student-athlete is the use of stimulant medications (Perrin & Jotwani, 2014; Stewman et al., 2018). This grows out of concern that stimulant medication can be used to improve performance or gain a competitive athletic advantage (Kutcher, 2011). Often guidelines established by the World Anti-Doping Agency are followed, in which stimulant

medications are listed as banned substances (Stewman et al., 2018). The International Olympic Committee follows these guidelines. College student-athletes, however, follow regulations set forth by the NCAA. Concern about ADHD medication arose when the NCAA discovered the number of student-athletes testing positive for stimulant medications increased threefold over the recent years (Parr, 2011). The NCAA requires a therapeutic use exemption in order for stimulant medications to be used by student-athletes. In 2009 the NCAA created a policy specifically for student-athletes with ADHD (Stewman et al., 2018). The key points of this policy include: evidence that the athlete has undergone clinical assessment for the ADHD diagnosis, for diagnoses made in childhood, a copy of the comprehensive assessment must be provided and if it is not available a new assessment must be conducted, therapeutic use exemption documentation, routine monitoring while psychostimulant medication is used, annual clinical evaluation by the team physician, current prescription must be maintained on file, and mandatory reporting of any history of substance abuse. Sports medicine physicians are encouraged to implore behavioral therapies and use nonbanned medications whenever possible (Kutcher, 2011).

Some ADHD athletes perform better when taking medication (Stewman et al., 2018). Overall, most athletes treated with medication benefit from treatment during practice as it aids with coaching and instruction. Due to the unique needs of the student-athlete, it is recommended that they time medication intake so it is effective during times of need (in academic settings or certain athletic events) and less effective during athletic competition when ADHD symptomology may be advantageous. Though concern exists over stimulant abuse, it has been largely discounted especially since medication treatment tends to reduce substance abuse risk. The American Medical Society for Sports Medicine stated in their 2011 position statement that the fear of stimulant abuse alone does not justify withholding pharmacological treatment

(Putukian et al., 2011). The most important consideration is how ADHD can impact personal productivity and social interaction especially in the athlete's school and athletic environment (Kutcher, 2011).

Very little literature exists that captures the viewpoint of the student-athlete living with ADHD. One major issue that student-athletes with ADHD may face that their nonathletic counterparts do not, is criticism from coaches. Coaches may label athletes with ADHD as lazy or defiant. A qualitative study conducted by Lee, Dunn, and Holt (2014) explored the youth sport experience of six males with ADHD who were an average age of 22.7. Through semistructured interviews, they identified challenges and benefits associated with sport participation. Challenges included "drifting off," blurting out comments, and reduced performance. All participants mentioned "drifting off" to distractions in their environment. Often because of this, they would make mistakes because they were not able to follow instructions. Consequently, they would receive criticism from their coaches and teammates. Some participants described feeling excluded by their coach or like they were a problem child. Participants also described making inappropriate comments to others which negatively impacted their relationships with their teammates. While they did not believe they lacked the necessary skills, participants believe that if they did not have ADHD, they would be better athletic performers. Some participants described feeling like they were destined to fail due to their ADHD. Benefits of sport participation included social interactions and stress/energy release. Social interactions were considered a benefit of sports participation as student-athlete described having something in common with others and being a part of something. Participants described that athletic participation helped burn excess energy, had a calming effect, and improved focus. As there are many complexities and challenges that come along with being a student-athlete with ADHD, the

authors also examined beneficial experiences. Two themes emerged, supportive coaches and personal coping strategies. Coaches who were patient and helped athletes correct their mistakes helped the athlete develop, stay involved in sport, and discover benefits from their participation. On the other hand, coaches who reacted with frustration and anger to mistakes, undermined the participants sport experience, decreased their longevity in participation, and damaged potential benefits they could gain. Participants described various personal coping strategies. Some athletes choose to reveal their ADHD diagnosis while others did not. Stimulant medications were effective for some participants and some strategically used their medication (i.e. during practice but not during competition). Other coping strategies included the use of imagery and creating a routine.

### **Current Study**

The current study is designed to extend what is known about college student-athletes with ADHD taking into account additional evidence-based factors that could complicate adjustment to college, especially academic adjustment. Previous researchers have suggested that college students with ADHD typically fair worse on academic outcomes when compared to college students without. However, student-athletes also are a specialized college population that face a significant number of stressors which can impact mental health complexity and severity. ADHD. Therefore, in this study, the additional importance of complexity and severity are examined because ADHD is often seen with co-occurring disorders and a larger number of life concerns, thus increasing potential levels of distress and severity. Additionally, student-athletes tend to fair less favorably than their nonathletic peers due to stressors associated with their dual roles. Considering student-athlete status and an ADHD diagnosis, it seems likely that these two factors would potentially work to the disadvantage of the college student in terms of college adjustment

and severity and complexity of mental health issues. While more attention is being given to student-athlete issues, the field is still lacking in literature. Literature exists on each individual dimension explored in this study, however no study has yet to combine all dimensions to examine the impact on the student-athlete. Additionally, no literature exists that compares ADHD student-athletes with ADHD nonathlete students on the dimensions of academic adjustment, severity of mental health issues, and complexity of mental health issues.

### **Research Questions**

With the identified gaps in literature in mind, this study seeks to address the following questions:

1. To what extent do college student-athletes with ADHD differ from nonathletes with ADHD on levels of academic adjustment?
2. To what extent do college student-athletes with ADHD differ from nonathletes with ADHD on severity of mental health concerns?
3. To what extent do college student-athletes with ADHD differ from nonathletes with ADHD on complexity of college life concerns?

## **CHAPTER III**

### **METHODOLOGY**

In this chapter the researcher describes the methodological design used in the proposed study on student-athletes with ADHD, college students with ADHD, academic adjustment, severity of mental health concerns, and complexity of college life concerns. The researcher begins by restating the purpose of the study and presenting again the research questions and their corresponding hypotheses. Next, the research design, data collection procedure, and data analysis techniques are discussed. The chapter concludes with a discussion of limitations.

#### **Purpose and Research Questions**

The study examines differences between athletic and nonathletic college students with ADHD in the domains of academic adjustment, severity of mental health concerns, and complexity of college life concerns. The researcher explores these relationships in order to improve academic services and mental health care to college students and student-athletes with ADHD. The following research questions guide this study:

#### **Question One – Academic Adjustment**

To what extent do college student-athletes with ADHD differ from nonathletes with ADHD on levels of academic adjustment?

#### **Hypothesis One**

College student-athletes with ADHD will have lower levels of academic adjustment than nonathletes with ADHD.

#### **Question Two – Severity of Mental Health Concerns**

To what extent do college student-athletes with ADHD differ from nonathletes with ADHD on severity of mental health concerns?

**Hypothesis Two**

College student-athletes with ADHD will experience more severe mental health concerns than nonathletes with ADHD.

**Question Three – Complexity of College Life Concerns**

To what extent do college student-athletes with ADHD differ from nonathletes with ADHD on complexity of college life concerns?

**Hypothesis Three**

College student-athletes with ADHD will have higher levels of complexity of college life concerns than nonathletes with ADHD.

**Research Design**

This study uses a non-experimental, ex post-facto, survey cross-sectional, correlational research design. Also known as the causal comparative method, this design allows for the grouping of certain variables without the ability to manipulate them, which is essential when using archival data (Creswell, 2014; Lord, 1973). It would be impractical to use an experimental design due to the nature of the study. The cross-sectional survey research comes from the small snapshot of one semester, Spring 2018, of survey responses. In addition to being relatively current data, the Spring 2018 semester was selected due to the high number of ADHD participants and high number of student-athlete participants when compared to other recent semesters. This research is correlational in nature as the goal is to describe differences however, the researcher is unable to make inferences as to why differences may be present. Gender is included as a covariate as meaningful differences have been found to exist for mental health and academic success in terms of gender (Schwitzer et al., 2018).

The study uses archival data from the American College Health Association (ACHA), refer to Appendix A for data disclaimer. The mission of the ACHA is “to serve as the principal leadership organization for advancing the health of college students and campus communities through advocacy, education, and research (About ACHA, 2019).” The ACHA created the National College Health Assessment (NCHA) survey to assist colleges and universities in collecting data about their students’ health habits, behaviors, and perceptions. The survey covers a range of health issues including physical health, health education, and safety, alcohol, tobacco, and other drug use, sexual health, weight, nutrition, and exercise, mental health, and impediments to academic performance. Since the first administration of the NCHA in Spring 2000 more than 1.4 million students and over 740 colleges and universities have taken the survey.

### **Participants**

The database only includes colleges that randomly select students for the NCHA II survey. The Spring 2018 dataset contains information collected from 88,178 participants (American College Health Association, 2018). Of those participants 4,513 met the inclusion criteria for the study (full time undergraduates with ADHD enrolled at a four-year college between the ages of 18-24). The research applied inclusion and exclusion criterion are to focus response to the research questions. Participants in the study needed to be undergraduate students who identified as having ADHD or varsity student-athletes who identified as having ADHD. While individuals of various ages completed the NCHA II, only undergraduate students aged 24 or younger were included in the study as this is the typical cut off age for traditional college students and is within the age range of emerging adulthood (Horn, 1996). The typical student-



athlete is required to attend school full time, usually at a four-year university; thus, this requirement was included to aid in matching the samples.

### **Treatment of Human Subjects**

This study was submitted to the Institutional Review Board (IRB) at Old Dominion University for exempt status prior to data analysis. The study was approved as exempt from human subjects review. This exempt letter can be found in Appendix A.

### **Participants' Statistics**

Of the of 4,505 participants who chose to identify their gender, 2,662 (65.4%) identified as female nonathletes, 1,410 (34.6%) identified as male nonathletes, 278 (64.2%) identified as female student-athletes, and 155 (35.8%) identified as male student-athletes. Table 1 represents the participants identified gender based on athletic status.

Table 1

*Participants' Demographics: Gender (n=4505)*

Characteristic	Nonathlete		Student-Athlete	
	<i>n</i>	%	<i>n</i>	%
Gender				
Female	2662	65.373	278	64.203
Male	1410	34.627	155	35.797

Of the 4,489 participants who chose to identify their age, 504 (12.4%) of nonathletes and 64 (12.9%) of student-athletes identified as 18, 921 (22.7%) of nonathletes and 128 (29.8%) of student-athletes identified as 19, 837 (20.6%) of nonathletes and 96 (22.4%) of student-athletes identified as 20, 845 (20.8%) of nonathletes and 85 (19.8%) of student-athletes identified as 21, 544 (13.4%) of nonathletes and 41 (9.6%) of student-athletes identified as 22, 245 (6.0%) of nonathletes and 12 (2.8%) of student-athletes identified as 23, and 164 (4.0%) of nonathletes and 3 (.7%) of student-athletes identified as 24. Table 2 represents the participants identified age based on athletic status.

Table 2

*Participants' Demographics: Age (n=4489)*

Characteristic	Nonathlete		Student-Athlete	
	<i>n</i>	%	<i>n</i>	%
Age				
18	504	12.414	64	14.918
19	921	22.685	128	29.837
20	837	20.616	96	22.378
21	845	20.813	85	19.814
22	544	13.399	41	9.557
23	245	6.034	12	2.797
24	164	4.039	3	.699

The researcher examined demographics for race/ethnicity, though they were not included in the research, to examine closeness of the sample of nonathletes and student-athletes. The researcher chose to do so as the sample sizes of the groups were not matched. The groups were closely matched on race/ethnicity despite uneven sample sizes. Table 3 represents the participants identified race/ethnicity based on athletic status and can be found in Appendix B. The NCHA II allowed participants to select multiple race/ethnicities.

### **Power Analysis**

Statistical power is the ability of a statistical test to detect an effect that is statistically significant (Field 2018; Cohen, 1992). For statistically significant results at least 100 participants need to answer each question. Responses from the Spring 2018 dataset include 7.8% of the participants with ADHD for a total of 6,765 participants and 6.5% of participants were varsity student-athletes for a total of 5,590. Thus, an approximate total of ADHD varsity student-athletes was calculated at 447, exceeding the minimum of 100 respondents per question.

### **Instrumentation**

The NCHA II is a 66 question self-report questionnaire designed to assess various aspects of college student health and collects demographic information. Sections of the NCHA II include health, health education, and safety, alcohol, tobacco, and drugs, sex behavior and contraception, weight, nutrition, and exercise, mental health, physical health, and impediments to academic performance. Questions and question format vary by and within subsections of the questionnaire.

A series of comparisons and statistical analyses (triangulation) are used to demonstrate reliability and validity (ACHA, 2013). The ACHA also conducted focus group testing for the NCHA II. When creating the NCHA II two pilot tests were conducted. Reliability analyses from

spring 2009 and spring 2010 demonstrate moderate to strong results in evaluation of grouped or scaled items and strong consistency over the two survey periods. Construct validity demonstrated consistency over the two periods with different colleges and universities. The instrument appears to be reliable, valid, and of empirical value for representing the U.S. college population.

Participants completed the mental health and impediments to academic performance sections of the Spring 2018 ACHA NCHA II dataset. These two sections will be used to address the research questions about academic adjustment, severity of mental health concerns, and complexity of college life issues amongst the participants. The researcher used questions from the NCHA II to create scales to measure the dependent variables under study. Research by Baker and Syirk (1984) guided the created measure for academic adjustment while research by Schwitzer (2019) and Bertolet (2016) guided the measures for complexity and severity.

### **Academic Adjustment**

The study assessed academic adjustment by using question 45A, B, C, and D from the impediments to academic performance section of the NCHA II. Question 45 asks about issues that may have affected academic performance for the individual over the past 12 months. The following issues are listed, alcohol use, allergies, anxiety, assault (physical and/or sexual), ADHD, cold/flu/sore throat, concern for a troubled friend or family member, chronic health problem or serious illness, chronic pain, death of a friend or family member, depression, discrimination, drug use, eating disorder/problem, finances, gambling, homesickness, injury, internet use/computer gaming, learning disability, participation in extracurricular activities, pregnancy, relationship difficulties, roommate difficulties, sexually transmitted infection, sinus/ear infection/bronchitis/strep throat, sleep difficulties, stress, work, and other (specify). For each issue the individual had the option to select one of the following response choices: this did

not happen to me/not applicable, I have experienced this issue but my academics have not been affected, received a lower grade on exam or important project, received a lower grade in the course, received an incomplete or dropped the course, or significant disruption in thesis, dissertation, research, or practicum work.

The researcher chose question 45 from the NCHA II to examine academic adjustment because it directly asks about impediments to academic performance. In line with Baker and Syrik's (1984) multifaceted model of college adjustment, this question asks about different college experiences that may impede academic performance. The model of college adjustment serves as the theoretical framework for this study, using a question from the NCHA II that closely relates to the elements of the model is essential in answering the first research question. Additionally, research by Katz and Somers (2017) found that environmental factors influence college adjustment. In addition to being likened with academic success, academic adjustment also has ties to depression as lower levels of depression result in better academic adjustment (Credé & Niehorster, 2012). Question 45 includes items that ask about environmental factors and mental health.

### **Severity of Mental Health Concerns**

The researcher assessed severity using seven items from the mental health section of the NCHA II. The researcher selected questions based on previous research by Schwitzer (2019) and Bertolet (2016) who used the Global Assessment of Functioning (GAF) scale and diagnosis level to address severity in their research. The GAF assesses the presence of mental health concerns. Question 32 has a yes or no response and asks if the individual has ever been diagnosed with depression. Question 30 asks if the individual has ever experienced symptoms of depression (i.e. feelings of hopelessness, feelings of sadness, depression that made it difficult to function,

attempted suicide) for a total of 11 items within the question. Answer choices for each item include, no never, no not in the last 12 months, yes in the last 2 weeks, yes in the last 30 days, and yes in the last 12 months. Next, other specific mental health disorders are examined in questions 31 A and B. This question asks if the individual has been diagnosed or treated by a professional in the last 12 months for any of the following, anorexia, anxiety, ADHD, bipolar disorder, bulimia, depression, insomnia, other sleep disorder, obsessive compulsive disorder (OCD), panic attacks, phobia, schizophrenia, substance abuse or addiction (to include alcohol), other addiction, and other mental health condition. Answer choices for each item include, no, yes diagnosed but not treated, yes, treated with medication, yes, treated with psychotherapy, yes, treated with medication and psychotherapy, and yes, other treatment. Question 37 asks the participant to rate their overall level of stress in the past 12 months. Answer choices include no stress, less than average stress, average stress, more than average stress, and tremendous stress.

Question 35 is a yes or no question that asks if the participant has ever received psychological or mental health services from their current college/university counseling or health services. Question 34 is a yes or no response question that asks if the participant has ever received psychological or mental health services. Yes or no answers are provided for each of the following items, counselor/therapist/psychologist, psychiatrist, other medical provider, and minister/priest/rabbi/other clergy. Question 36 is a yes or no question that asks if the participant would consider seeking help from a mental health professional if they were having a bothersome personal problem in the future.

The researcher used existing literature to select question from the NCHA II to represent severity. Severity is defined as problems that cause significant disruption to a student's ability to function within the college environment that may require mental health care beyond what a

campus counseling center can provide (Sharkin, 1997). For the purpose of this study, severity examines the level of self-reported distress based on diagnosis or treatment for mental health disorders over the past 12 months as well as attitudes towards mental health. Previous literature examined self-reported or counselor reported presenting problems and treatment received for these problems as a way to measure severity. For example, Rando and Barr (2008) found that 80% of college counseling center directors surveyed reported an increase in students with severe psychological problems and 96% reported the number of students with significant psychological problems was a growing concern. Further, the percentage of college counseling center students on psychotropic medication was 9% in 1994 which increased to 20% in 2003 and then to 26% in 2008 (Gallagher, 2008). Depression is of particular focus in NCHA II questions. Depression as a presenting problem in university counseling centers is high at an average rate of 34.5% while suicidal thoughts and behaviors were at an average rate of 25.2% (LeViness et al., 2017). Student vulnerability to depression may be increased by factors such as lifestyle changes resulting in sleep and eating disturbances, financial stressors, a change in family relationships, and academic and future career worries which is why the question about stress was included (Ibrahim et al., 2013).

### **Complexity of College Life Concerns**

The researcher assessed complexity using items from the mental health section of the NCHA II. The researcher selected questions to address severity based on previous research by Schwitzer (2019) and Bertolet (2016). These researchers examined complexity through number of diagnoses and number of presenting problems. The NCHA II examines specific mental health disorders in questions 31 A and B. This question asks if the individual has been diagnosed or treated by a professional in the last 12 months for any of the following, anorexia, anxiety,

ADHD, bipolar disorder, bulimia, depression, insomnia, other sleep disorder, obsessive compulsive disorder (OCD), panic attacks, phobia, schizophrenia substance abuse or addiction (to include alcohol), other addiction, and other mental health condition. Answer choices for each item include, no, yes diagnosed but not treated, yes, treated with medication, yes, treated with psychotherapy, yes, treated with medication and psychotherapy, and yes, other treatment.

Question 37 asks the participant to rate their overall level of stress in the past 12 months. Answer choices include no stress, less than average stress, average stress, more than average stress, and tremendous stress.

Question 33 asks about events that could be described as traumatic or very difficult for the participant to handle in the past 12 months and is answered with either a yes or no response. Items include, academics, career-related issue, death of a family member or friend, family problems, intimate relationships, other social relationships, finances, health problem of a family member or partner, personal appearance, personal health issue, sleep difficulties, and other.

The researcher consulted previous literature when selecting questions from the NCHA II about complexity. Complexity refers to a high rate of co-occurring issues (Coniglio et al., 2005). For the purpose of this study, complexity is defined as the number of concerns a student is experiencing. Research by Conley, Kirsch, Dickson, and Bryant (2014) found that among participants in their study, the immediate transition to college is characterized by steep declines in psychological and social well-being and an increase in psychological distress. Therefore, questions regarding mental health were included when examining complexity. Stress was the second most reported client presenting problem at an average of 39.1% at university counseling centers according to the 2016-2017 AUCCCD directors survey (LeViness et al., 2017) thus, the question regarding stress was included. Some specific life concerns that were noted as presenting



problems and their average rates are as follows; relationship problems at 22.9%, family at 21.2%, sleep at 15.8%, loneliness at 15.5%, career at 10.5%, grief at 8.3%, and discrimination at 3.6%. Many of these issues are directly addressed in the NCHA II. College students experience stressors representing difficulties in establishing social interaction, intrapersonal habit changes, academic difficulties, and environmental changes which can influence psychological symptoms such as depression (Acharya et al., 2018).

### **Data Analysis**

Data analysis begins with data cleaning. Variables are created, defined, and labeled. Data are screened for missing variables and data entry errors. Any data that appears to be problematic (i.e. little differentiation, missing responses, etc.) are removed from the dataset. Descriptive statistics are calculated for relevant demographic variables. The researcher did not conduct post-hoc tests for group sizes as there are only two groups.

The researcher conducted separate analyses for each research question. For the purposes of answering the first research question, “To what extent do college student-athletes with ADHD differ from nonathletes with ADHD on levels of academic adjustment?” the researcher performed a reliability analysis and a univariate analysis of variance (ANOVA) to examine interactions between outcome variables (Field, 2018).

The following analyses cover the second research question, “To what extent do college student-athletes with ADHD differ from nonathletes with ADHD on severity of mental health concerns?” The researcher used logistic regression for Question 32, herein referred to as depression diagnosis. Logistic regression predicts categorical outcomes (Field, 2018). Question 30, herein referred to as depression, examines depression symptoms and is examined through a univariate analysis of variance. ANOVA examines differences between groups (Field, 2018).

Question 31A and 31B, herein referred to as severity of mental health concerns are analyzed with logistic regression. Question 37 examines stress and is herein referred to as level of stress is analyzed by performing a univariate ANOVA. The researcher uses logistic regression to analyze question 35, referred to as receiving university mental health services and question 36, referred to as future mental health help-seeking. The researcher examines the means of answer choices in question 34, referred to as previous mental health providers.

The following analyses cover the third research question, “To what extent do college student-athletes with ADHD differ from nonathletes with ADHD on complexity of college life concerns?” Similar to the second research question, the researcher examines complexity in question 31A and 31B by univariate ANOVA analysis. Question 37, level of stress, is analyzed by performing a univariate ANOVA. A univariate ANOVA is used to analyze question 33, herein referred to as complexity of college life concerns. The study’s design analysis is summarized in Table 4 as follows:

Table 4

*Research Questions, Variables, and Analyses*

<b>Research Question</b>	<b>Independent Variables</b>	<b>Dependent Variables</b>	<b>Analysis</b>
To what extent do college student-athletes with ADHD differ from nonathletes with ADHD on levels of academic adjustment?	ADHD nonathlete students ADHD student-athletes Gender	Academic Adjustment	Univariate ANOVA
To what extent do college student-athletes with ADHD differ from nonathletes with ADHD on severity of mental health concerns?	ADHD nonathlete students ADHD student-athletes Gender	Severity of Mental Health Concerns, Depression Diagnosis, Depression, Level of Stress, Previous Mental Health Providers, Receiving University Mental Health Services, and Future Mental Health Help-seeking	Univariate ANOVA Logistic regression
To what extent do college student-athletes with ADHD differ from nonathletes with ADHD on complexity of college life concerns?	ADHD nonathlete students ADHD student-athletes Gender	Complexity of College Life Concerns, Complexity of Mental Health Concerns, Level of Stress	Univariate ANOVA

## **Data Cleaning and Analysis of Assumptions**

### **Data Cleaning**

Prior to conducting the analyses, the researcher screened for missing values and outliers. The original dataset consisted of 88,178 participants however, the researcher removed participants who did not meet the previously listed inclusion criteria. The researcher recoded certain individual variables and created new measures. To create the academic adjustment measure, responses from 30 items in question 45 (excluding the ‘other’ response) on the NCHA II were totaled creating an overall score that ranged from 30 to 180. Higher scores represented poorer academic adjustment.

To create the depression measure, the researcher first recoded the existing responses for items in question 30 in the NCHA II as follows: “no, never” from 1 to 0, “no, not in the last 12 months” from 2 to 1, “yes, in the last 2 weeks” from 3 to 2, “yes, in the last 30 days” from 4 to 3, and “yes, in the last 12 months” from 5 to 4. The researcher then totaled the 11 items for a possible depression score ranging from 0-44 with higher scores representing increased levels of depression. To create the severity of mental health concerns measure, the researcher first recoded answer choices for 15 items from question 31 in the NCHA II. This allowed the researcher to rank answer choices in level of severity. Responses were recoded as follows: “no” (i.e. no treatment or diagnosis) from 1 to 0, “yes, diagnosed but not treated” from 2 to 1, “yes, treated with medication,” “yes, treated with psychotherapy” and “yes, other treatment” from 3, 4, and 6 respectively to 2, and “yes, treated with medication and therapy” from 5 to 3. A totaled scale of the 15 items created a severity score ranging from 0 to 45 with higher scores representing increased severity.

To create the complexity of mental health concerns measure, the researcher recoded answer choices for 15 items from question 31 in the NCHA II. Responses were recoded as follows: “no” (i.e. no treatment or diagnosis) from 1 to 0, “yes, diagnosed but not treated,” “yes, treated with psychotherapy,” “yes, other treatment,” and “yes, treated with medication” from 3, 4, 5, and 6 respectively to 1. A totaled scale of the 15 items created a severity score ranging from 0 to 15 with higher scores representing increased complexity. The researcher created the complexity of college life concerns measure by recoding “no” responses from 1 to 0 and “yes” responses from 2 to 1. The 12 items were then totaled creating a possible score range of 0 to 12 with higher scores representing increased complexity of college life concerns. The researcher coded all dichotomous dependent variables (depression diagnosis, university mental health services, and future mental health help-seeking) to binary, “no” to 0 and “yes” to 1.

### **Analysis of Assumptions**

Before testing the hypotheses, the researcher examined frequencies for gender, age, and race/ethnicity by athletic status. This allowed the research to examine the proportionality of the participants in each group given they were not a matched sample size. These frequencies are presented in Table 1 (gender) and Table 2 (age) in the methodology chapter and Table 3 (race/ethnicity) in Appendix B. The researcher examined descriptive statistics for the dependent variables: depression, severity of mental health concerns, complexity of mental health concerns, complexity of college life concerns, level of stress, depression diagnosis, receiving university mental health services, and future mental health help-seeking. Preliminary analyses addressed the following assumptions for ANOVA analyses: normality, independence of cases, and homogeneity of variance (Field, 2018). Preliminary analyses addressed the following assumptions for logistic regression analyses: presence of dichotomous variables, independence

of errors, and linear relationships between dependent and independent variables (Menard, 2010). The researcher also examined the data for outliers and multicollinearity.

#### **ANOVA assumptions.**

Table 5 in Appendix B contains the means and standard deviations for the dependent variables in the study. Descriptive statistics were compiled for continuous variables to check for normality of the distribution. Continuous variables include depression, severity of mental health concerns, complexity of mental health concerns, complexity of college life concerns, and level of stress. Skewness and kurtosis with an absolute value greater than 1.96 at  $p < .05$  violates the assumption of normal distribution (Field, 2018). While most of the variables examined did not exceed the threshold, for kurtosis; severity of mental health concerns had an absolute value of 3.75, complexity of mental health concerns had an absolute value of 2.98, and depression diagnosis had an absolute value of 1.97. The researcher determined that due to the large sample size, severity of mental health concerns, complexity of mental health concerns, and depression diagnosis did not violate the assumption of normality (Field, 2018). Homogeneity of variance exists when groups come from populations with the same variance (Field, 2018). Homogeneity of variance existed among the data as assessed by visual inspection of plots.

#### **Logistic regression assumptions.**

The researcher used logistic regression to analyze dichotomous variables with “yes” or “no” answer choices. Participants in the sample are counted once thus observations are independent for each question. The researcher assessed linearity by visual inspection of P-P plots which appeared normal. The assumption of independence of errors states that errors in the model are not related to one another (Field, 2018). The researcher used the Durbin-Watson statistic to test the assumption of the independence of errors. The Durbin-Watson statistic of two was used

for the threshold for determining independence of errors (Field, 2018). For this study, the Durbin-Watson statistics ranged from 1.43 to 1.94, signifying a lack of autocorrelation.

### **Outliers.**

SPSS software version 25 was used to test for outliers. Utilizing casewise diagnostics, outliers were determined if greater than 3 standard deviations. In the case of problematic outliers, winsorizing was used to limit extreme values. Winsorizing replaces outliers with the highest value that is not an outlier (Field, 2018). For the current study, winsorizing was used on the academic adjustment scale.

### **Multicollinearity.**

Appendix B, Table 6 contains multicollinearity results for continuous dependent variables in the study. The researcher used Pearson's  $r$  correlations that determined the absence of multicollinearity for these variables. A  $r$  value of 0.9 was used as a threshold to determine highly correlated variables (Field, 2018). All of the dependent variables were significantly correlated at  $p < .001$ . Severity of mental health concerns and complexity of mental health concerns were positively correlated at .916. This was expected as both scales use the same set of questions but were recoded differently by the researcher. For the remaining variables, no correlations above .588 existed. The researcher examined multicollinearity of dichotomous variables with the variance inflation factor (VIF). The VIF indicates strong relationships among predictors, a value over 1 suggests multicollinearity may be biasing the model (Field, 2018). VIF values of 1.00 existed for all dichotomous variables in the current research study which indicated an absence of multicollinearity.

## **Reliability Analysis**

I calculated Cronbach's alpha to examine the reliability of the constructed scales. Academic adjustment has an alpha level of .854, depression has an alpha level of .809, severity of mental health concerns has an alpha level of .775, complexity of college life concerns has an alpha level of .809, and complexity of mental health concerns has an alpha level of .761. Cronbach alpha levels at 0.7 or higher are generally found to be acceptable in terms of reliability (Field, 2018).

## **Limitations**

Limitations of this research include its non-experimental ex post-facto design as it does not allow for the manipulation of variables. Thus, causation cannot be determined (Lord, 1973). However, the research design employed is commonly used by other researchers in the field and this study had a large sample size. Threats to internal and external validity are also included in the study limitations. Threats to internal validity effect the researcher's ability to draw accurate inferences from data about the experimental population (Creswell, 2014). Threats to external validity occur when researchers draw incorrect inferences about their population from their data. The tendency of participants to respond to self-report items in a socially normative way is a threat to internal validity. A threat to external validity includes construct validity and if our constructed scales of academic adjustment, mental health severity, and complexity of college life concerns would be widely accepted. To address this, the study used existing literature and previous research when creating the scales and performed reliability analyses.



## **Conclusion**

This chapter reviews the methodology for the current study while describing the purpose of the study, research design, participants, instrumentation, and data analysis procedures. In closing, this chapter reviewed limitations of this study.

## CHAPTER IV

### RESULTS

This chapter reviews the results of the statistical analyses for the current study. In addition to a detailed discussion of data cleaning and preliminary analyses, the researcher reviews the results of statistical analysis for each research question.

#### Description of Analyses

The researcher analyzed the data by using SPSS software version 25. An alpha significance level of .05 was utilized for all analyses; and gender was a control variable for all three research questions.

#### **Research Question 1: To What Extent Do College Student-Athletes with ADHD Differ from Nonathletes With ADHD on Levels of Academic Adjustment?**

The researcher performed a univariate ANOVA to examine the relationship between athletic status and academic adjustment. Athletic status (nonathlete or student-athlete) represented the independent variable while academic adjustment (summed scale ranging from 30 to 180) represented the dependent variable. To control for gender, it was entered as a covariate where 0 is female and 1 is male.

Results for academic adjustment are presented in Appendix C, Table 7. Through analysis, the researcher identified a significant relationship between athletic status and academic adjustment  $F(1, 4491) = 15.504, p < .001$ , though there was a weak effect size ( $\eta_p^2 = .003$ ). Student-athletes ( $M = 45.19$ ) had significantly lower academic adjustment scores when compared to nonathletes ( $M = 47.41$ ). This indicates that, based on their responses, student-athletes were more well-adjusted academically. Through analysis, the researcher identified a significant relationship between gender and academic adjustment  $F(1, 4491) = 128.690, p < .001$ , though

there was a weak effect size ( $\eta_p^2 = .028$ ). Females ( $M = 48.58$ ) had significantly higher academic adjustment scores when compared to males ( $M = 44.61$ ). This indicates that, based on their responses, females struggle more with academic adjustment.

**Research Question 2: To What Extent Do College Student-Athletes with ADHD Differ from Nonathletes With ADHD on Severity of Mental Health Concerns?**

The researcher conducted univariate ANOVA and logistic regression analyses to examine the relationship between athletic status and severity. For ANOVA analyses, athletic status represents the independent variable, depression (summed scale ranging from 0 to 44), severity of mental health concerns (summed scale ranging from 0 to 45), and level of stress (singular score) represent the dependent variables. To control for gender, it was entered as a covariate with 0 representing females and 1 representing males. For logistic regression analyses, athletic status and gender represent the predictor variables while the dichotomous outcome variables include depression diagnosis, receiving university mental health services, and future mental health help-seeking. To control for gender as a covariate, gender was entered for Step 1. In step 2, for each independent logistic regression analysis, the corresponding outcome variable (depression diagnosis, receiving university mental health services, and future mental health help-seeking) was entered. As part of the second research question, the researcher compared the means for previous mental health providers to examine differences between nonathlete and student-athlete groups.

The logistic regression model for depression diagnosis was statistically significant,  $p < .001$  for gender and athletic status. The model explained 3.9% (Cox & Snell  $R^2$ ) of the variance in depression diagnosis and correctly classified 58.5% of cases. Through analysis, the researcher identified the odds of having a depression diagnosis as 1.464 times higher for nonathletes than

for student-athletes. Through analysis, the researcher identified the odds of having a depression diagnosis as 2.294 times higher for females than for males. Results for depression diagnosis are presented in Appendix C, Table 8.

Results for depression are presented in Appendix C, Table 9. Through analysis, the researcher identified a significant relationship between athletic status and depression  $F(1, 4412) = 14.000, p < .001$ , though there was a weak effect size ( $\eta_p^2 = .003$ ). Student-athletes ( $M = 18.22$ ) had significantly lower depression scores when compared to nonathletes ( $M = 19.75$ ), indicating that student-athletes are less likely to have high levels of depressive symptoms. Through analysis, the researcher identified a significant relationship between gender and depression  $F(1, 4412) = 84.107, p < .001$ , though there was a weak effect size ( $\eta_p^2 = .019$ ). Females ( $M = 20.40$ ) had significantly higher depression scores when compared to males ( $M = 18.12$ ). This suggests that females may experience higher levels of depressive symptoms.

Results for severity of mental health concerns are presented in Appendix C, Table 10. Through analysis, the researcher identified a significant relationship between athletic status and severity of mental health concerns  $F(1, 4499) = 9.187, p = .002$ , though there was a weak effect size ( $\eta_p^2 = .002$ ). Student-athletes ( $M = 3.78$ ) had significantly lower severity of mental health concern scores when compared to nonathletes ( $M = 4.47$ ). This suggests that if student-athletes are experiencing mental health concerns, they report them as less severe meaning they have less of an overall impact. Through analysis, the researcher identified a significant relationship between gender and severity of mental health concerns  $F(1, 4499) = 19.590, p < .001$ , though there was a weak effect size ( $\eta_p^2 = .041$ ). Females ( $M = 5.09$ ) had significantly higher severity of mental health concerns scores when compared to males ( $M = 3.12$ ). This suggests that if females

are experiencing mental health concerns, they report them as more severe meaning they have more of an overall impact.

Results for level of stress are presented in Appendix C, Table 11. Through analysis, the researcher identified a significant relationship between athletic status and level of stress  $F(1, 4500) = 7.759, p = .005$ , though there was a weak effect size ( $\eta_p^2 = .002$ ). Student-athletes ( $M = 3.75$ ) had significantly lower scores for level of stress when compared to nonathletes ( $M = 3.86$ ), indicating that student-athletes were experiencing less stress. Through analysis, the researcher identified a significant relationship between gender and level of stress  $F(1, 4500) = 84.508, p < .001$ , though there was a weak effect size ( $\eta_p^2 = .018$ ). Females ( $M = 3.93$ ) had significantly higher scores for level of stress when compared to males ( $M = 3.70$ ), indicating that females were experiencing more stress.

The logistic regression model for receiving university mental health services was statistically significant,  $p < .001$  for gender. The model was not statistically significant for athletic status  $p = .248$ . The model explained 1% (Cox & Snell  $R^2$ ) of the variance for receiving university mental health services and correctly classified 64.6% of cases. Through analysis, the researcher identified the odds of receiving university mental health services as 1.681 times higher for females than for males. Results for receiving university mental health services are presented in Appendix C, Table 12.

The logistic regression model for future mental health help-seeking was statistically significant,  $p < .001$ , for gender and athletic status. The model explained 2% (Cox & Snell  $R^2$ ) of the variance in future mental health help-seeking and correctly classified 83.9% of cases. Through analysis, the researcher identified the odds of seeking mental health care in the future as 1.600 times higher for nonathletes than for student-athletes. Through analysis, the researcher

identified the odds of seeking mental health care in the future as 1.883 times higher for females than for males. Results for future mental health help-seeking are presented in Appendix C, Table 13.

The researcher examined the mean scores for nonathletes and student-athletes regarding previous mental health care providers. These statistics are provided in Appendix C, Table 14. The response of 1 represents “no”, meaning the participant had not received mental health care from this type of provider while the response of 2 represents “yes”. The reported means indicate that for both groups, counselors, therapists, and psychologists were most likely to have provided mental health care in the past while ministers, priests, rabbis, and other clergy were least likely.

**Research Question 3: To What Extent Do College Student-Athletes with ADHD Differ from Nonathletes With ADHD on Complexity of College Life Concerns?**

The researcher conducted univariate ANOVA analyses to examine the relationship between athletic status and complexity. For these analyses, athletic status represents the independent variable, complexity of mental health concerns (summed scale ranging from 0 to 15), level of stress (singular score), and complexity of college life concerns (summed scale ranging from 0 to 12) represent the dependent variables. To control for gender, it was entered as a covariate.

Results for complexity of mental health concerns are presented in Appendix C, Table 15. Through analysis, the researcher identified a significant relationship between athletic status and complexity of mental health concerns  $F(1, 4499) = 9.952, p = .002$ , though there was a weak effect size ( $\eta_p^2 = .002$ ). Student-athletes ( $M = 2.04$ ) had significantly lower complexity of mental health concerns scores when compared to nonathletes ( $M = 2.38$ ). This suggests that mental health concerns are less complex among the student-athlete population meaning student-athletes

are less likely to deal with multiple mental health concerns. Through analysis, the researcher identified a significant relationship between gender and complexity of mental health concerns  $F(1, 4499) = 211.010, p = < .001$ , though there was a weak effect size ( $\eta_p^2 = .045$ ). Females ( $M = 2.69$ ) had significantly higher complexity of mental health concerns scores when compared to males ( $M = 1.71$ ). This suggests that females are more likely to deal with multiple mental health concerns.

Results for level of stress are presented in Appendix C, Table 11. Through analysis, the researcher identified a significant relationship between athletic status and level of stress  $F(1, 4500) = 7.759, p = .005$ , though there was a weak effect size ( $\eta_p^2 = .002$ ). Student-athletes ( $M = 3.75$ ) had significantly lower scores for level of stress when compared to nonathletes ( $M = 3.86$ ), indicating that student-athletes were experiencing less stress. Through analysis, the researcher identified a significant relationship between gender and level of stress  $F(1, 4500) = 84.508, p = < .001$ , though there was a weak effect size ( $\eta_p^2 = .018$ ). Females ( $M = 3.93$ ) had significantly higher scores for level of stress when compared to males ( $M = 3.70$ ), indicating that females were experiencing more stress.

Results for complexity of college life concerns are presented in Appendix C, Table 16. Through analysis, the researcher identified a significant relationship between athletic status and complexity of college life concerns  $F(1, 4500) = 21.809, p = < .001$ , though there was a weak effect size ( $\eta_p^2 = .005$ ). Student-athletes ( $M = 4.00$ ) scored significantly lower on complexity of college life concerns when compared to nonathletes ( $M = 4.75$ ). This indicates that student-athletes were less likely to report multiple college related life concerns. Through analysis, the researcher identified a significant relationship between gender and complexity of college life concerns  $F(1, 4500) = 119.667, p = < .001$ , though there was a weak effect size ( $\eta_p^2 = .026$ ).

Females ( $M = 5.05$ ) scored significantly higher on complexity of college life concerns when compared to males ( $M = 3.97$ ). This suggests that females are more likely to report more college related life concerns.



## **CHAPTER V**

### **DISCUSSION**

This chapter summarizes the problem under study and discusses the findings, implications, and limitations of the current study. Research questions are individually addressed and will include implications for counseling professionals, university and athletic administrators, and students. The chapter concludes with limitations and recommendations for future research.

#### **Summary of Problem**

The National Center for Education Statistics (2019) reported an increase in overall undergraduate enrollment in degree-granting postsecondary institutions from 35% in 2000 to 40% in 2017. As college enrollment has increased over time, the attention given to college student issues has followed suit. Upon entering higher education, college students face new adjustments in terms of life, academics, and mental health. Examples include acclimating to new social roles, accepting new responsibilities, separating from family and friends, and becoming constructive members of a college community (Credé & Niehorster, 2012). Successful navigation of college requires that students effectively adjust to more than just increased academic demands.

Student-athlete status demands more from the college student which can impact their overall well-being. Additionally, transitioning to college as a student with ADHD can be a challenge as the environment is less structured and often students may not discover they have ADHD until they transition to college (Papanikolaou et al., 2003). The pressure to balance student and athlete roles along with a disability can cause challenges in academic adjustment, added life stress and potentially lead to increased mental health severity.

Academic adjustment is defined by academic demands as reflected by students' attitudes towards their studies, academic engagement, and adequacy of their study and academic endeavors (Baker & Siryk, 1984; Credé & Niehorster, 2012). Multiple studies link academic adjustment to academic success (Credé & Niehorster, 2012; van Rooij et al., 2018). Students who struggle to adjust to higher academic demands, a lower structured environment, and novel academic tasks are more likely to have poor grades on tests and assignments.

Severe problems are those that cause significant disruption to a student's ability to function within the college environment (Sharkin, 1997). A recent trend in college mental health counseling is an increase in the number of students experiencing mental health concerns and an increase in students seeking mental health services (Kirsch et al., 2015). Complexity is defined as a high rate of co-occurring issues (Coniglio et al., 2005). Life stress, which contributes to complexity, is defined as an individual's psychological reactions and adaptations to major life events such as the death of a family member or close friend (Papanikolaou et al., 2003). Non-college life-events, those that occur outside of college, such as financial disruptions and relationship distress also contribute to life stress (Cox, Reason, Nix, & Gillman, 2016). The severity and complexity of emotional, behavioral, relational, and mental problems can impact academic performance (Prince, 2015).

ADHD, defined in the *DSM-5* as a "a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development," affects approximately 2.5% of the adult population (American Psychiatric Association, 2013). Though it is commonly diagnosed in childhood some individuals may not receive an ADHD diagnosis until young adulthood or adulthood, particularly those with primarily inattentive symptoms (Parr, 2011; Perrin & Jotwani, 2014; Stewman et al., 2018). Once an individual is under the intense demands

of college ADHD symptomology may become more apparent. ADHD may also be overlooked in some individuals due to frequently co-occurring psychiatric conditions (Stewman et al., 2018).

ADHD is the fastest growing disability category on college campuses (U.S. Government Accountability Office 2009). The number of undergraduate students reporting ADHD as a disability was 11.6% in 2004 and rose to 19.1% in 2008.

This study examines the differences between nonathletes with ADHD and student-athletes with ADHD. The current study specifically focused on academic adjustment, severity of mental health concerns, and complexity of college life concerns within the populations. This study expanded literature on college students and student-athletes with ADHD. Existing literature suggests that students with ADHD typically fare worse on academic outcomes when compared to those without ADHD thus, this study examines academic adjustment. It is not unusual to discover co-occurring disorders and multiple life concerns along with an ADHD diagnosis, making it important to examine severity and complexity in this study. Because student-athletes face additional stressors due to demands of their dual roles, this study investigates the role of severity and complexity within their lives as compared to nonathletes.

### **Major Findings**

The results of this study contribute to the existing body of literature on college student adjustment, severity, and complexity. The findings vary for each research question. This section will review the results for each research question prior to discussing the findings.

#### **Research Question One**

The first research question investigated differences between student-athletes with ADHD and nonathletes with ADHD on levels of academic adjustment. It was hypothesized that due to their dual roles as students and athletes, coupled with ADHD, student-athletes would report

poorer academic adjustment. To analyze the question, the researcher created a summed scale for academic adjustment and conducted a univariate ANOVA. Higher academic adjustment scores are representative of poorer overall academic adjustment as indicated by multiple and/or more serious impacts of listed issues that college students may potentially face. Results of this study indicated that there was a small significant relationship between athletic status and academic adjustment. However, nonathletes fared worse than student-athletes which was in opposition to the hypothesis. Though the effect size was minimal, the analysis also revealed that females obtained higher scores on the academic adjustment measure indicating poorer levels of overall academic adjustment.

Previous research indicates that student-athletes are less motivated to perform academically and prioritize sport over educational attainment (Cosh & Tully, 2014; Lucas & Lovaglia, 2002). Additionally, research has found that student-athletes struggle with scheduling clashes between their athletic demands, such as practice times, and scheduled class meeting times as well as competitions during peak exam times (Cosh & Tully, 2015). The conflicting findings of the current research study could be due to the fact that student-athletes are often highly regulated by athletic departments in terms of academic performance. This may commonly occur through frequent meetings with academic advisors, classroom checks, and increased access to resources such as tutors. Conflicting results may also exist because both groups have ADHD and previous literature has suggested that adjustment to college is often more difficult for students with ADHD due to the specific nature of the disorder (Blase et al., 2009; Meaux, Green, & Broussard, 2009).

## Research Question Two

The second research question investigated differences between student-athletes with ADHD and nonathletes with ADHD on levels of severity of mental health concerns. It was hypothesized that due to their dual roles as students and athletes, coupled with ADHD, student-athletes would report higher levels of mental health severity as demonstrated by higher scores on depression, severity of mental health concerns (i.e. more mental health diagnoses), and level of stress. It was also hypothesized that increased levels of severity in student-athletes would be represented by a previous depression diagnosis, not receiving university mental health services, being less likely to seek mental health help in the future. Student-athlete groups were hypothesized to have lower means for past mental health help-seeking when compared to nonathletes.

The hypothesis for research question was only supported for future mental health help-seeking. Results indicated that student-athletes were less likely to seek professional mental health help in the future for personal problems when compared to the nonathlete group. This is supported by previous research which found that student-athletes may experience more barriers when seeking mental health care as well as increased stigma (Reardon & Factor, 2010). Additionally, past research indicates that leadership, such as being in the position of a team captain, in the athletic population is associated with a decreased interest in counseling for social and emotional concerns (Eiche, Sedlacek & Adams-Gaston, n.d.). In this study, females were more likely to seek future help when compared to males.

Nonathletes reported higher depression scores, severity of mental health concern scores, and level of stress scores. Nonathletes were also more likely to have a previous depression diagnosis. No significant effect for athletic status was found for receiving university mental

health services. Females reported higher depression scores, severity of mental health concern scores, level of stress scores and were more likely to have a previous depression diagnosis and receive university mental health services.

Consistent with previous literature, rates of depression are high in the college student population. Depression results are supported by literature which provides evidence for high rates in the college population. According to the 2016-2017 AUCCCD directors' survey depression as a presenting problem in university counseling centers is high at an average rate of 34.5% (LeViness et al., 2017). Another study found the number of college students presenting to a college counseling center with depression concerns doubled over a 13-year period (Benton et al., 2003). Nonathletes reported more intense levels of treatment for mental health disorders which resulted in higher severity of mental health scores. Lower severity of mental health scores for student-athletes could be explained by an increased focus on mental health by athletic departments (Melendez, 2006). For example, some universities employ in-house mental health professionals to meet the needs of students and staff.

Previous research indicates that student vulnerability to depression may be increased by stressors which, in addition to contributing to severity, may explain why the nonathlete group scored high on depression measures and level of stress (Ibrahim, Kelly, Adams, & Glazebrook, 2013). Given the research on student-athlete specific stressors, it is surprising results are not significant for this population. Nonathlete and student-athlete groups were closely matched on past providers for mental health services. Both groups were most like to have previously sought services from counselors, therapists, or psychologists followed by psychiatrists. Overall, results indicate that nonathletes and females experience higher levels of mental health severity. This does not mean that student-athletes do not experience mental health severity. In fact, student-

athlete mental health issues such as depression, substance abuse, and anxiety are well researched and documented (Putukian, 2016; Rao & Hong, 2016; Undry et al., 1997)

### **Research Question Three**

The third research question investigated differences between student-athletes with ADHD and nonathletes with ADHD on complexity of college life concerns. It was hypothesized that due to their dual roles as students and athletes, coupled with ADHD, student-athletes would exemplify more complexity as demonstrated by higher scores on level of stress and complexity of mental health concerns. It was also hypothesized that student-athletes would have more life concerns as evidenced by complexity of college life concerns.

The hypothesis for the third research question was not supported. The nonathlete group, along with females, scored higher on complexity of mental health concerns, level of stress, and complexity of college life concerns. Nonathletes reported diagnosis with more mental health disorders which resulted in higher complexity of mental health scores. This finding is consistent with previous literature that has found that individuals with ADHD often have higher rates of other psychiatric conditions (Stewman et al., 2018). Similar to severity, increased attention towards student-athlete mental health may explain a decrease in overall complexity of life concerns for student-athletes (Melendez, 2006). Additionally, the social networks that sports teams provide may mitigate stress and life concerns such as loneliness (Miller & Kerr, 2002). However, lower stress scores for nonathletes are in direct opposition to previous literature which has identified 640 organizational stressors unique to an individual's sport participation (Arnold & Fletcher, 2012). Some include balancing academic and athletic schedules, navigating relationships with coaches and teammates, and coping with injuries (Arnold & Fletcher, 2012; Cosh & Tully, 2015; Rao & Hong, 2016). Previous research indicates that stress is impacted by

lifestyle changes which may explain why the nonathlete group, with higher levels of stress, also had more life concerns (Ibrahim, Kelly, Adams, & Glazebrook, 2013).

### **Integrating the Findings**

There are significant differences between nonathletic and student-athlete ADHD students on levels of academic adjustment, mental health severity, and complexity of life concerns though the differences are small. Overall the findings of this study indicate that nonathletes fare worse than student-athletes in terms of academic adjustment, mental health severity, and complexity of life concerns. For all research questions, effect sizes, though small, were higher for gender than athletic status. Even though significant differences exist between the nonathlete and student-athlete groups, they are not dramatically different. Thus, it appears as though both groups experience distress in college.

The ADHD status of the study participants may explain small effect sizes for academic adjustment, severity, and complexity. Both nonathletes and student-athletes may experience some of the same challenges due to their disability. For example, in previous literature, higher levels of ADHD symptoms were significantly related to lower levels of academic adjustment (Norwalk, Norvilitis, & MacLean, 2009). Academically, college students with ADHD have been found to have lower grade point averages, are more likely to be on academic probation, and report more academic problems when compared to college students without ADHD (Gormley et al., 2016; Heiligenstein et al., 1999). Those with ADHD have been found to have higher rates of other co-occurring psychiatric conditions including depression (Stewman et al., 2018).

When examining the differences between nonathletes and student-athletes on social and personal-adjustment scales of the SACQ, Melendez (2016) found no significant differences. Both scales are closely related to elements of severity and complexity examined in this study. It



is not implausible to speculate that severity or complexity issues may be noticed more in student-athletes and addressed sooner as they are imbedded in an environment that places daily attention on them. For example, if a student-athlete is exhibiting signs of depression, the symptoms may be detected by coaches and teammates sooner than a nonathlete who attends class and returns home. In general, this study supports the existence of severity in the college population which is consistent with previous research by Connell et al. (2007). Another explanation for the small effect sizes may be that the groups are not dramatically different from one another on levels of depression which is supported by previous literature. Wolanin et al. (2016) found a 23.7% prevalence rate of clinically relevant levels of depression and a 6% prevalence in the moderate to severe range in a single cohort of student-athletes over a three-year period. These rates are similar to those of the regular college student population (Ibrahim et al., 2013).

Stress is a commonly reported presenting problem at university counseling centers, at an average of 39.1% according to the 2016-2017 AUCCCD directors survey (LeViness et al., 2017). As students stress levels increase, their life satisfaction decreases (Holinka, 2015). Multiple life concerns are common stressors for college students. One study found that 42% of participants presented with concerns across multiple problem areas providing evidence for the complexity of college student concerns (Krumrei, Newton, & Kim, 2010). Consistent with previous research, in this study the group with the higher stress level, nonathletes, also identified more life concerns. Based on previous research linking stress to lower academic adjustment and mental health concerns, it is not surprising that one group, nonathletes, consistently fared worse on the dependent variables in question in this study.

## **Implications**

This study has implications for both college counseling and higher education research. It expands existing information on academic adjustment, severity, and complexity within the nonathlete and student-athlete populations. This section discusses implications for the college counselors, college and athletic administrators, and students.

### **Implications for College Counseling Professionals**

University counseling centers are unique in that they are able to provide accessible services to their students. This study indicates that increased levels of severity and complexity exist in the college population, both nonathletes and student-athletes, but is higher among nonathletes. University counseling centers can create new programming to address mental health knowledge and improve attitudes towards mental health help-seeking among college students to include student-athletes. It may be helpful to have targeted programming for student-athletes. Previous research has found that brief contact and education-based interventions can be helpful in reducing stigma and promoting help-seeking among student-athletes (Kern et al., 2017). On the other hand, results indicate that nonathletes are more likely to seek mental health help in the future when they encounter a personal problem.

Since students with ADHD typically struggle more with academic adjustment, psychoeducation about the disorder may be helpful for students. This could be especially important for this age group as many individuals may not discover they have the disorder until they reach college (Parr, 2011; Perrin & Jotwani, 2014; Stewman et al., 2018). Destigmatizing the disorder is also an important part of psychoeducation as many students may have felt ashamed in the past. Students can be taught psychosocial skills so they can express their needs to

faculty, staff, and parents. College counseling centers may want to consider partnering with university accessibility offices in order to promote any programming specific to ADHD students.

This study is also evidence for the need for funding for university counseling centers. Funding is essential in order to maintain staff, expand programming, and provide appropriate mental health care. Additionally, funding can be used for staff education to increase competence in specific student populations and mental health issues. Often counseling centers suffer from a lack of economic resources which can restrict the services they provide to students (Mowbray et al., 2006). This study is evidence for severity and complexity of mental health concerns in college students. If university counseling centers promote their services and create new programming it is essential that they have the staff and funding to back it up. As this study shows, university counseling centers can be of service for students dealing with adjustment, mental health, and life issues who are willing to seek help.

### **Implications for College and Athletic Administrators**

Academic adjustment is often tied to student retention. Compared to their peers, students with ADHD usually experience poorer adjustment and have lower rates of retention (Ahmann, Tuttle, Saviet, & Wright, 2018). Addressing environmental factors such as perception of the university environment and social support leads to increased academic adjustment which in turn increases retention (Katz & Somers, 2017). Universities can ease academic adjustment for students with ADHD through ADHD coaching as it has been shown to improve ADHD symptoms and executive functioning (Ahmann, Tuttle, Saviet, & Wright, 2018). ADHD coaching may also have implications for severity and complexity as some studies have connected it to increased well-being. In the current study, student-athletes had better academic adjustment, lower levels of mental health severity, and decreased complexity of life issues. Thus, college

administrators might consider examining what athletic departments are doing that is contributing to better outcomes in student-athletes when compared to nonathletes.

It is important for athletic administrators to recognize that just like their nonathletic counterparts, student-athletes face adjustment, mental health, and life challenges. Administrators should strive to provide mental health psychoeducation, particularly how ADHD effects the athlete, to staff who frequently interact with student-athletes such as coaches and academic advisors. This can help reduce stigma surrounding mental health and beliefs that those with ADHD are “lazy” or that they just need to “try harder” (Stamp et al., 2014). It may be helpful to work with the university counseling center when providing programming. Additionally, it would be helpful to address specific barriers to mental health help-seeking for student-athletes in order to reduce them.

### **Implications for Students**

ADHD students may experience shame or avoidance when attempting to cope with their disorder (Stamp et al., 2014). However, students would benefit from using any resources their college campus provides and self-advocating. In addition, students can benefit from gathering accurate information about their disorder and how it can impact their academic performance and overall mental health. For example, research by Stamp et al. (2014) found that 58% of their ADHD students experienced feelings of depression or severe discouragement when attempting to cope with ADHD. Increasing coping skills may result in better academic and mental health outcomes. Students should also self-advocate by learning how to ask and asking for help when they need it. Student-athletes may need to learn how to communicate with athletic administrators and coaches. University administrators in campus accessibility offices may be of particular help when it comes to self-advocacy efforts.

## **Limitations**

Limitations are inherent in any research study. Some of the limitations of this study are specific to the research design itself. Limitations of the current research are discussed below. Limitations should be considered when interpreting the results of this study.

### **Limitations of the Research Design**

Limitations of this research include its non-experimental ex post-facto design as it does not allow for the manipulation of variables. Thus, causation cannot be determined (Lord, 1973). Threats to internal and external validity are also included in this study limitation. Threats to internal validity effect the researcher's ability to draw accurate inferences from data about the experimental population (Creswell, 2014). The tendency of participants to respond to self-report items in a socially normative way is a threat to internal validity. Respondent fatigue, when participants become tired or bored with the survey and the quality of data they provide deteriorates, is another internal validity threat. This may be especially relevant to this study as the NCHA II is a lengthy survey and our participants have ADHD, a disorder known for inattentiveness. Threats to external validity occur when researchers draw incorrect inferences about their population from their data (Creswell, 2014). The generalizability of this study is limited as the sample was comprised of full-time undergraduate students with ADHD at four-year institutions between the ages of 18-24. A threat to external validity includes construct validity of researcher constructed scales on levels of academic adjustment, mental health severity, and complexity of college life concerns. Cronbach's alpha was calculated and found to be acceptable for all created scales.

Finally, this study had relatively small effect sizes (.002-.045). Effect sizes are used to determine the strength of the relationship between two variables (Field, 2018). In this study

effect sizes were used to determine how much of the variance in athletic status was explained by the dependent variables (academic adjustment, severity, and complexity). These variables accounted for a small portion of the variance in athletic status suggesting the measures did not fully capture the phenomenon or other factors may more significantly influence athletic status. It is not unusual to find significance in large sample sizes; thus, results of this study should be interpreted carefully (Field, 2018).

### **Recommendations for Future Research**

After considering the results and limitations of this study, the researcher suggests the following recommendations for future research.

#### **Recommendation One**

The first recommendation is to replicate the study with matched samples of the student-athlete and nonathlete groups. When samples are matched, participation in one group or the other does not influence the outcome of the research (Creswell, 2014). Future research can match nonathlete and student-athletes on several demographic variables. This would sample sizes of the two groups equivalent.

#### **Recommendation Two**

The second recommendation is to compare the nonathlete and student-athlete ADHD groups to nonathletes and student-athletes without ADHD. A more comparative research design is necessary to examine if findings for the current study are unique to ADHD college students or whether findings can be generalized to the general college student population.

#### **Recommendation Three**

The third recommendation is to employ a phenomenological qualitative research design. This type of design allows the researcher to describe the lived experiences of individuals about a

phenomenon as described by the research participants (Creswell, 2014). In this case the academic adjustment, severity, and complexity experiences of ADHD nonathletes and student-athletes. This type of research may lead to a deeper and richer understanding of student perspectives regarding the variables being studied.

#### **Recommendation Four**

The fourth recommendation is to examine student-athletes by division. Demands are quite different for student-athletes who are Division I when compared to those who are Division III. For example, Division III athletes often have more relaxed expectations, time constraints, and even different NCAA rules when compared to Division I or Division II athletes (Melendez, 2016). Exploration of these differences would allow future research to determine if division levels impact academic adjustment, mental health severity, and complexity of life concerns. This comparative research could be done with the general student-athlete population and/or with student-athletes with ADHD.

#### **Conclusion**

This study examined academic adjustment, mental health severity, and complexity of life concerns in nonathlete ADHD and student-athlete ADHD college populations. The purpose of the study was to increase research on ADHD in college students, especially student-athletes. To the researcher's knowledge this is the first study to compare nonathletes and student-athletes with ADHD on levels of academic adjustment, mental health severity, and complexity of life concerns. The study used an existing dataset from the ACHA to answer the research questions.

Findings from this study indicate that the nonathlete and student-athlete groups differ on levels of academic adjustment, mental health severity, and complexity of life concerns. Effect sizes were small for all findings. However, results of this research may prove useful in

improving academic and mental health interventions especially for the ADHD population which may be at particular risk for adjustment, severity, and complexity issues due to their disability status. Finally, this study contributes to the growing literature on college students, college student-athletes, and ADHD within these populations. The research findings have implications for college counseling professionals, college and athletic administrators, and college students.



## REFERENCES

- Acharya, L., Jin, L., & Collins, W. (2018). College life is stressful today – emerging stressors and depressive symptoms in college students. *Journal of American College Health, 66*(7), 655-664. doi: <https://doi.org/10.1080/07448481.2018.1451869>
- Ahmann, E., Tuttle, L. J., Saviet, M., & Wright, S. D. (2018). A descriptive review of ADHD coaching research: Implications for college students. *Journal of Postsecondary Education and Disability, 31*(1), 17-39.
- American College Health Association. American College Health Association-National College Health Assessment, Spring 2018 [data file]. Silver Spring, MD: American College Health Association [producer and distributor]; (2019-04-30).
- American Psychiatric Association. (1968). *Diagnostic and statistical manual of mental disorders* (2nd ed.). Washington, DC: Author.
- American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.). Washington, DC: Author.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: Author.
- Armstrong, S., & Oomen-Early, J. (2009). Social connectedness, self-esteem, and depression symptomatology among collegiate athletes versus nonathletes. *Journal of American College Health, 57*(5), 521-526. doi: 10.3200/JACH.57.5.521-526
- Arnold, R., & Fletcher, D. (2012). A research synthesis and taxonomic classification of the organizational stressors encountered by sport performers. *Journal of Sport & Exercise Psychology, 34*, 397-429. doi: 10.1123/jsep.34.3.397

- Baker, J., Côté, J., & Hawes, R. (2000). The relationship between coaching behaviours and sport anxiety in athletes. *Journal of Science and Medicine in Sport*, 3(2), 110-119. doi: 10.1016/S1440-2440(00)80073-0
- Baker, R. W., & Siryk, B. (1984). Measuring adjustment to college. *Journal of Counseling Psychology* 32(2), 179-189. doi: 10.1037/0022-0167.31.2.179
- Baker, R. W., McNeil, O. V., & Siryk, B. (1985). Expectation and reality in freshman adjustment to college. *Journal of Counseling Psychology*, 32(1), 94-103. doi: 10.1037/0022-0167.32.1.94
- Barkley, R. A., Fischer, M., Smallish, L., & Fletcher, K. (2002). The persistence of attention deficit/hyperactivity disorder into young adulthood as a function of reporting source and definition of disorder. *Journal of Abnormal Psychology*, 111(2), 279-289. doi: 10.1037//0021-843X.111.2.279
- Benton, S. A., Robertson, J. M., Tseng, W., Newton, F. B., & Benton, S. L. (2003). Changes in counseling client problems across 13 years. *Professional Psychology: Research and Practice* 34(1), 66-72. doi: 10.1037/0735-7028.34.1.66
- Bertolet, C. (2016). *Examining college counseling clients' symptomology and severity over an eight-year span* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses Global. (10112691).
- Biederman, J., Monuteaux, M. C., Spencer, T., Wilens, T. E., & Faraone, S. V. (2009). Do stimulants protect against psychiatric disorders in youth with ADHD? 10-year follow-up study. *Pediatrics*, 124, 71-78.

- Blase, S. L., Gilbert, A. D., Anastopoulos, A. D., Costell, J. E., Hoyle, R. H., Swartzwelder, S. H., & Rabiner, D. L. (2009). Self-reported ADHD and adjustment in college. *Journal of Attention Disorders, 13*(3), 297-309. doi: 10.1177/1087054709334446
- Bradley, C. (1937). The behavior of children receiving Benzedrine. *American Journal of Psychiatry, 94*, 577-585.
- Bullock-Yowell, E., Peterson, G. W., Reardon, R. C., Leierer, S. J., & Reed, C. A. (2011). Relationships among career and life stress, negative career thoughts, and career decision state: A cognitive information processing perspective. *The Career Development Quarterly, 59*(4), 302-315. doi: 10.1002/j.2161-0045.2011.tb00071.x
- Cairns, S. L., Massfeller, H. F., & Deeth, S. C. (2010). Why do postsecondary students seek counseling? *Canadian Journal of Counseling, 44*(1), 34-50.
- Carpenter, B. N. (1992). Issues and advance in coping research. In B. N. Carpenter (Ed.), *Personal coping: Theory, research, and application* (pp. 1-13). Westport, CT: Praeger.
- Center for Collegiate Mental Health. (2017). *Standardized Data Set (SDS)* (Publication No. U.Ed. STA 17-21). Retrieved from <https://sites.psu.edu/ccmh/files/2017/08/SDS-Manual-v.4.2-1o60h2h.pdf>
- Chemers, M. M., Hu, L., & Garcia, B. F. (2001). Academic self-efficacy and first-year college student performance and adjustment. *Journal of Educational Psychology, 93*(1), 55-64. doi: 10.1037//0022-0663.93.1.55
- Christman, J. (2004). Relational autonomy, liberal individualism, and the social constitution of selves. *Philosophical Studies, 117*, 143-164. doi: 10.1023/B:PHIL.0000014532.56866.5c
- Cohen, J. (1992). Statistical power analysis. *Current Directions in Psychological Science, 1*(3), 98-101. doi: 10.1111/1467-8721.ep10768783

- Coker-Cranney, A. & Reel, J. J. (2015). Coach pressure and disordered eating in female collegiate athletes: Is the coach-athlete relationship a mediating factor? *Journal of Clinical Sport Psychology, 9*, 213-231. doi: 10.1123/jcsp.2014-0052
- Coniglio, C., McLean, G., & Meuser, T. (2005). *Personal counselling in a Canadian post-secondary context*. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.734.916&rep=rep1&type=pdf>
- Conley, C. S., Kirsch, A. C., Dickson, D. A., Bryant, F. B. (2014). Negotiating the transition to college: Developmental trajectories and gender differences in psychological functioning, cognitive-affective strategies, and social well-being. *Emerging Adulthood, 2*(3), 195-210. doi: 10.1177/2167696814521808
- Connell, J., Barkham, M., Mellor-Clark, J. (2007). CORE-OM mental health norms of students attending university counselling services benchmarked against an age-matched primary care sample. *British Journal of Guidance and Counselling, 35*(1), 41-57. doi: 10.1080/03069880601106781
- Cosh, S. & Tully, P. J. (2014). "All I have to do is pass": A discursive analysis of student athletes' talk about prioritising sport to the detriment of education to overcome stressors encountered in combining elite sport and tertiary education. *Psychology of Sport and Exercise, 15*(2), 180-189. doi: 10.1016/j.psychsport.2013.10.015
- Cosh, S., & Tully, P. J. (2015). Stressors, coping, and support mechanisms for student athletes combining elite sport and tertiary education: Implications for practice. *The Sport Psychologist, 29*(2), 120-133. doi: 10.1123/tsp.2014-0102

- Cousins, C., Servaty-Seib, H. L., & Lockman, J. (2015). College student adjustment and coping: Bereaved and nonbereaved students. *OMEGA – Journal of Death and Dying, 74*(4), 386-409. doi: 10.1177/0030222815598911
- Cox, B. E., Dean, J. G., & Kowalski, R. (2015). Hidden trauma, quiet drama: The prominence and consequence of complicated grief among college students. *Journal of College Student Development, 56*(3), 280-285. doi: 10.1353/csd.2015.0030
- Cox, B. E., Reason, R. D., Nix, S., & Gillman, M. (2016). Life happens (outside of college): Non-college life-events and students' likelihood of graduation. *Research in Higher Education, 57*(7), 823-844. doi: 10.1007/s11162-016-9409-z
- Credé, M. & Niehorster, S. (2012). Adjustment to college as measured by the student adaptation to college questionnaire: A quantitative review of its structure and relationships with correlates and consequences. *Educational Psychology Review, 24*(1), 133-165. doi: 10.1007/s10648-011-9184-5
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Thousand Oaks, CA: SAGE Publications.
- Darling, C. A., McWey, L. M., Howard, S. N., & Olmstead, S. B. (2007). College student stress: The influence of interpersonal relationship on sense of coherence. *Stress and Health, 23*, 215-229. doi: 10.1002/smi.1139
- De Luca, S. M., Franklin, C., Yueqi, Y., Johnson, S., & Brownson, C. (2016). The relationship between suicide ideation, behavioral health, and college academic performance. *Community Mental Health Journal, 52*(5), 534-540. doi: 10.1007/s10597-016-9987-4
- DeSimone, A., Murray, P., & Lester, D. (1994). Alcohol use, self-esteem, depression, and suicidality in high school students. *Adolescence, 29*(116), 939-942.

- Deykin, E. Y., Levy, J. C., Wells, V. (1987). Adolescent depression, alcohol and drug abuse. *American Journal of Public Health, 77*(2), 178-182. doi: 10.2105/AJPH.77.2.178
- Eiche, K., Sedlacek, W., & Adams-Gaston, J. (n.d.). *An exploration of leadership characteristics in university athletes* (Research Report # 6-97). University of Maryland at College Park. Retrieved from: [files.eric.ed.gov/fulltext/ED411753.pdf](http://files.eric.ed.gov/fulltext/ED411753.pdf)
- Eryilmaz, A. & Doğan, T. (2013). The mediator role of need satisfaction between subjective well-being and romantic relationships quality. *Eurasian Journal of Educational Research, 53*, 79-96.
- Field, A. (2018). *Discovering statistics using SPSS* (4th ed.). Thousand Oaks, CA: SAGE Publications.
- Ferrante, A. P. & Etzel, E. F. (2009) College student-athletes and counseling services in the new millennium. In E. F. Etzel (Ed.), *Counseling and psychological services for college student-athletes* (pp. 1-50). Morgantown, WV: Fitness Information Technology.
- Gallagher, R. P. (2008). National Survey of Counseling Center Directors. The American College Counseling Association. The International Association of Counseling Service, University of Pittsburg, Series 8Q.
- Gallagher, R. P. (2012). Thirty years of the national survey of counseling center directors: A personal account. *Journal of College Student Psychotherapy, 26*(3), 172-184. doi: 10.1080/87568225.2012.685852
- Garrity, T. & Ries, J. (1985). Health status as a mediating factor in the life change-academic performance relationship. *Journal of Human Stress, 11*(3), 118-124. doi: 10.1080/0097840X.1985.9936748

- Gearity, B. T., & Murray, M. A. (2011). Athletes' experiences of the psychological effects of poor coaching. *Psychology of Sport and Exercise, 12*(3), 213-221. doi: 10.1016/j.psychsport.2010.11.004
- Gerdes, H., & Mallinckrodt, B. (1994). Emotional, social, and academic adjustment of college students: A longitudinal study of retention. *Journal of Counseling & Development, 7*(3), 281-288. doi: 10.1002/j.1556-6676.1994.tb00935.x
- Girelli, L., Aliverini, F., Lucidi, F., Cozzolino, M., Savarese, G., Sibilio, M., & Salvatore, S. (2018). Autonomy supportive contexts, autonomous motivation, and self-efficacy predict academic adjustment of first-year university students. *Frontiers in Education, 3*, 1-11. doi: 10.3389/educ.2018.00095
- Gormley, M. J., DuPaul, G. J., Weyandt, L. L., & Anastopoulos, A. D. (2016). First-year GPA and academic service use among college students with and without ADHD. *Journal of Attention Disorders, 1*-14. doi: 10.1177/1087054715623046
- Gunn, J. E., Grieve, F. G., Greer, R. M., & Thomas, A. (2005). Comparison of symptom severity between clients at a university counseling center and a community mental health agency. *The College Student Affairs Journal, 25*(1), 76-85.
- Håkansson A., Kenntä G., & Åkesdotter C. (2018). Problem gambling and gaming in elite athletes. *Addictive Behaviors Reports, 8*, 79-84. doi: 10.1016/j.abrep.2018.08.003
- Heiligenstein, E., Guenther, G., Levy, A., Savino, F., & Fulwiler, J. (1999). Psychological and academic functioning in college students with attention deficit hyperactivity disorder. *Journal of the American College Health Association, 47*(4), 181-185. doi: 10.1080/07448489909595644

- Hingson, R., Heeren, T., Winter, M., & Wechsler, H. (2005). Magnitude of alcohol-related mortality and morbidity among U.S. college students ages 18-24: Changes from 1998 to 2001. *Annual Review of Public Health, 26*, 259-279. doi: 10.1146/annurev.publhealth.26.021304.144652
- Hoepfner, B. B., Hoepfner, S. S., & Campbell, J. F. (2009). Examining trends in intake rates, client symptoms, hopelessness, and suicidality in a university counselling center over 12 years. *Journal of College Student Development, 50*(5), 539-550. doi: 10.1353/csd.0.0090
- Holinka, C. (2015). Stress, emotional intelligence, and life satisfaction in college students. *College Student Journal, 49*(2), 300-311.
- Horn, L. J. (1996). *National undergraduates: Trends in enrollment from 1986 to 1992 and persistence and attainment among 1989-90 beginning postsecondary students*. Retrieved from the Institute of Education Sciences, National Center for Education Statistics website: <https://nces.ed.gov/pubs/web/97578.asp>
- Ibrahim, A. K., Kelly, S. J., Adams, C. E., & Glazebrook, C. (2013). A systematic review of studies of depression prevalence in university students. *Journal of Psychiatric Research, 47*(3), 391-400. doi: 10.1016/j.jpsychires.2012.11.015
- Jiang, Y. & Johnston, C. (2012). The relationship between ADHD symptoms and competence as reported by both self and others. *Journal of Attention Disorders, 16*(5), 418-426. doi: 10.1177/1087054710392541
- Johnson, C. Crosby, R., Engel, S. Mitchell, J., Powers, P., Wittrock, D., & Wonderlich, S. (2004). Gender, ethnicity, self-esteem and disordered eating among college athletes. *Eating Behaviors, 5*, 147-156. doi: 10.1016/j.eatbeh.2004.01.004



- Jones, P. J., Park, S. Y., & Lefvor, G. T. (2018). Contemporary college student anxiety: The role of academic distress, financial stress, and support. *Journal of College Counseling, 21*(3), 252-264. doi: 10.1002/jocc.12107
- Katz, S. & Somers, C. (2017). Individual and environmental predictors of college adjustment: Prevention and intervention. *Current Psychology, 36*(1), 56-65. doi: 10.1007/s12144-015-9384-0
- Keyes, C. L., Eisenberg, D., Perry, G. S., Dube, S. R., Kroenke, K., & Dhingra, S. S. (2012). The relationship of level of positive mental health with current mental disorders in predicting suicidal behavior and academic impairment in college students. *Journal of American College Health, 60*(2), 126-133. doi: 10.1080/07448481.2011.608393
- Kern, A., Heininger, W., Klueh, E., Salazar, S., Hansen, B., Meyer, T., & Eisenberg, D. (2017). Athletes connected: Results from a pilot project to address knowledge and attitudes about mental health among college student-athletes. *Journal of Clinical Sport Psychology, 11*(4), 324-336. doi: 10.1123/JCSP.2016-0028
- Kimball, A. C. (2007). "You signed the line": Collegiate student-athletes' perceptions of autonomy. *Psychology of Sport and Exercise, 8*(5), 818-835, doi: 10.1016/j.psychsport.2007.03.005
- Kimball, A. & Freysinger, V. J. (2003). Leisure, stress, and coping: The sport participation of collegiate student-athletes. *Leisure Sciences, 25*, 115-141. doi: 10.1080/01490400390211790
- Kirsch, D., Doerfler, L., & Truong, D. (2015). Mental health issues among college students: Who gets referred for psychopharmacology evaluation? *Journal of American College Health, 63I*(1), 50-56. doi: 10.1080/07448481.2014.960423

- Kreher, J. (2012). Attention deficit/hyperactivity disorder (ADHD) in athletes. *International Journal of Athletic Therapy & Training*, *17*(3), 15-19. doi: 10.1123/ijatt.17.3.15
- Krumrei, E. J., Newton, F. B., & Kim, E. (2010). A multi-institution look at college students seeking counseling: Nature and severity of concerns. *Journal of College Student Psychotherapy*, *24*(4), 261-283. doi: 10.1080/87568225.2010.509223
- Kutcher, J. S. (2011). Treatment of attention-deficit hyperactivity disorder in athletes. *Current Sports Medicine Reports*, *10*(1), 32-36. doi: 10.1249/JSR.0b013e3182091d79
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- Lee, H., Dunn, J. C., & Holt, N. L. (2014). Youth sport experiences of individuals with attention deficit/hyperactivity disorder. *Adapted Physical Activity Quarterly*, *31*(4), 343-361. doi: 10.1123/apaq.2014-0142
- Leong, F. T., & Bonz, M. H. (1997). Coping styles as predictors of college adjustment among freshmen. *Counseling Psychology Quarterly*, *10*(2), 211-220.
- LeViness, P., Bershan, C., & Gorman, K. The Association for University and College Counseling Center Directors Annual Survey (AUCCCD 2017 monograph [public version]). Available at: <https://www.aucccd.org/director-surveys-public>. Accessed March 10, 2019.
- Lloyd, C., Alexander, A. A., Rice, D. G., & Greenfield, N. S. (1980). Life events as predictors of academic performance. *Journal of Human Stress*, *6*(3), 15-25. doi: 10.1080/0097840X.1980.9936094
- Lopez, R. L., & Levy, J. (2013). Student athletes' perceived barriers to and preferences for seeking counseling. *Journal of College Counseling*, *16*(1), 19-31. doi: 10.1002/j.2161-1882.2013.00024.x

- Lord, H. G. (1973). Ex post facto studies as a research method. Special report No. 7320.
- Lubker, J. R., & Etzel, E., F. (2007). College adjustment experiences of first-year students: Disengaged athletes, nonathletes, and current varsity athletes. *NASPA Journal, 44*(3), 457-481.
- Lucas, J. W., & Lovaglia, M. J. (2002). Athletes' expectations for success in athletics compared to academic competition. *The Sports Journal*.
- Maron, B. J., Haas, T. S., Murphy, C. J., Ahluwalia, A., & Rutten-Ramos, S. (2014). Incidence and causes of sudden death in U.S. college athletes. *Journal of the American College of Cardiology, 63*(16). doi: 10.1016/j.jacc.2014.01.041
- Meaux, J. B., Green, A., & Broussard, L. (2009). ADHD in the college student: A block in the road. *Journal of Psychiatric and Mental Health Nursing, 16*(3), 248-256. doi: 10.1111/j.1365-2850.2008.01349.x
- Meeuwisse, W. H., & Fowler, P. J. (1988). Frequency and predictability of sports injuries in intercollegiate athletes. *Canadian Journal of Sports Science, 13*, 35-42.
- Melendez, M. (2006). The influence of athletic participation on the college adjustment of freshmen and sophomore student athletes. *Journal of College Student Retention: Research, Theory & Practice, 8*(1), 39-55. doi: 10.2190/8gly-g974-v7fm-e1yd
- Melendez, M. (2016). Adjustment to college in an urban commuter setting: The impact of gender, race/ethnicity, and athletic participation. *Journal of College Student Retention: Research, Theory & Practice, 18*(1), 31-48. doi: 10.1177/1521025115579671
- Mellalieu, S. D., Neil, R., Hanton, S., & Fletcher, D. (2009). Competition stress in sport performers: Stressors experiences in the competition environment. *Journal of Sports Sciences, 27*(7), 729-744. doi: 10.1080/02640410902889834

- Menard, S. (2010). *Logistic regression: From introductory to advanced concepts and applications*. Thousand Oaks, CA: SAGE Publications.
- Miller, B. E., Miller, M. N., Verhegge, R., Linville, H. H., & Pumariega, A. J. (2002). Alcohol misuse among college athletes: Self-medication for psychiatric symptoms? *Journal of Drug Education, 32*(1), 41-52. doi: 10.2190/jdfm-avak-g9fv-0myy
- Miller, P. S., & Kerr, G. (2002). The athletic, academic and social experiences of intercollegiate student-athletes. *Journal of Sports Behavior, 25*(4), 346-367.
- Misra, R., & McKean, M. (2000). College students' academic stress and its relation to their anxiety, time management, and leisure satisfaction. *American Journal of Health Studies, 16*(1), 41-51.
- Mowbray, C. T., Megivern, D., Mandiber, J. M., Strauss, S., Stein, C. H., Collins, K., Kopels, S., Curlin, C., & Lett, R. (2006). Campus mental health services: Recommendations for change. *American Journal of Orthopsychiatry, 76*(2), 226-237. doi: 10.1037/0002-9432.76.2.226
- Much, K., & Swanson, A. L. (2010). The debate about increasing college student psychopathology: Are college students really getting "sicker"? *Journal of College Student Psychotherapy, 24*(2), 86-97. doi: 10.1080/87568220903558570
- National Center for Education Statistics. (2019). *College enrollment rates*. Retrieved from [https://nces.ed.gov/programs/coe/indicator\\_cpb.asp](https://nces.ed.gov/programs/coe/indicator_cpb.asp)
- National Collegiate Athletics Association. (2018). *NCAA national study on substance use habits of college student-athletes*. Retrieved from <http://www.ncaa.org/about/resources/research/ncaa-student-athlete-substance-use-study>

- Nattiv, A. & Puffer, J. C. (1991). Lifestyles and health risks of collegiate athletes. *The Journal of Family Practice*, 33, 585-590.
- Nagel, D. L., Black, D. R., Leverenz, L. J., & Coster, D. C. (2000). Evaluation of a screening test for female college athletes with eating disorders and disordered eating. *Journal of Athletic Training* 35(4), 431-440.
- Nelson, J. M. & Liebel, S. W. (2018). Anxiety and depression among college students with attention-deficit/hyperactivity disorder (ADHD): Cross-informant, sex, and subtype differences. *Journal of American College Health*, 66(2), 123-132. doi: 10.1080/07448481.2017.1382499
- Nelson, T. F., & Wechsler, H. (2001). Alcohol and college athletes. *Medicine & Science in Sports & Exercise*, 33(1), 43-47. doi: 10.1097/00005768-200101000-00008
- Nelson, W. L., Hughes, H. M., Handal, P., Katz, B., & Searight, H. R. (1993). The relationship of family structure and family conflict to adjustment in young adult college students. *Adolescence*, 28(109), 29-40.
- Norwalk, K., Norvilitis, J. M., & MacLean, M. G. (2009). ADHD symptomatology and its relationship to factors associated with college adjustment. *Journal of Attention Disorders*, 13(3), 251-258. doi: 10.1177/1087054708320441
- Palmer, C. G. (2002). *College student-athletes' experience of living with attention deficit hyperactivity disorder (ADHD): A phenomenological analysis* (Doctoral dissertation). Retrieved from <https://scholarworks.umt.edu/etd/9391>. (Order No. 9391)
- Papanikolaou, Z., Nikolaidis, D., Patsiaouras, A., & Alexopoulos, P. (2003). The freshman experience: High stress – low grades. *Athletic Insight: The Online Journal of Sport Psychology*, 5(4), 1-10.

- Parr, J. W. (2011). Attention-Deficit hyperactivity disorder and the athlete: New advances and understanding. *Clinics in Sports Medicine, 30*(3), 591-610. doi: 10.1016/j.csm.2011.03.007
- Perrin, A. E., & Jotwani, V. M. (2014). Addressing the unique issues of student athletes with ADHD. *Journal of Family Practice, 63*(5), E1-9.
- Prince, J. P. (2015). University student counseling and mental health in the United States: Trends and challenges. *Mental Health and Prevention, 3*, 5-10. doi: <http://dx.doi.org/10.1016/j.mhp.2015.03.001>
- Proctor, S. L., & Boan-Lenzo, C. (2010). Prevalence of depressive symptoms in male intercollegiate student-athletes and nonathletes. *Journal of Clinical Sport Psychology, 4*(3), 204-220. doi: 10.1123/jcsp.4.3.204
- Putukian, M. (2016). The psychological response to injury in student athletes: A narrative review with a focus on mental health. *British Journal of Sports Medicine, 50*, 145-148. doi: 10.1136/bjsports-2015-095586
- Putukian, M., Kreher, J. B., Coppel, D. B., Glazer, J. L., McKeag, D. B., & White, R. D. (2011). Attention deficit hyperactivity disorder and the athlete: An American medical society for sports medicine position statement. *Clinical Journal of Sports Medicine, 21*, 392-401.
- Rabiner, D. L., Anastopoulos, A. D., Costello, J., Hoyle, R. H., & Swartzwelder, S. H. (2008). Adjustment to college in students with ADHD. *Journal of Attention Disorders, 11*(6), 689-699. doi: 10.1177/1087054707305106
- Rando, R., & Barr, V. (2008). *The association for university and college counseling center directors annual survey*. Retrieved from Association for University and College

- Counseling Center Directors website: <https://www.aucccd.org/director-surveys-public>. Accessed March 10, 2019.
- Rao, A. L., & Hong, E. S. (2016). Understanding depression and suicide in college athletes: Emerging concepts and future directions. *British Journal of Sports Medicine, 50*(3). doi: 10.1136/bjsports-2015-095658
- Reardon, C. L., & Factor, R. M. (2010). Sports psychiatry: A systematic review of diagnosis and medical treatment of mental illness in athletes. *Sports Medicine, 40*(11), 961-980. doi: 10.2165/11536580-000000000-00000
- Richards, T. L., Rosén, L. A., & Ramirez, C. A. (1999). Psychological functioning differences among college students with confirmed ADHD, ADHD by self-report only, and without ADHD. *Journal of College Student Development, 40*(3), 299-304.
- Ridner, S. L., Newton, K. S., Staten, R. R., Crawford, T. N., & Hall, L. A. (2016). Predictors of well-being among college students. *Journal of American College Health, 64*(2), 116-124. doi: <http://dx.doi.org/10.1080/07448481.2015.1085057>
- Robbins, S. B., Lese, K. P., & Herrick, S. M. (1993). Interactions between goal instability and social support on college freshman adjustment. *Journal of Counseling and Development, 71*(3), 343-348. doi: 10.1002/j.1556-6676.1993.tb02224.x
- Roxas, A. S., & Ridinger, L. L. (2016). Relationships of coaching behaviors to student-athlete well-being. *Academic Perspectives in Higher Education, 2*(1).
- Schwartz, A. (2006). Are college students more disturbed today? Stability in the acuity and qualitative character of psychopathology of college counseling center clients: 1992-1993 through 2001-2002. *Journal of American College Health, 54*(6), 327-337. doi: 10.3200/JACH.54.6.327-337

- Schwitzer, A. (2019, May). *College mental health clients: Changes over time in severity, complexity, disruptiveness, and treatment demand*. Grand ballroom presentation at the American College Health Association Conference, Denver, CO.
- Schwitzer, A. M., Moss, C. B., Pribesh, S. L., St. John, D. J., Burnett, D. D., Thompson, L. H., & Foss, J. J. (2018). Students with mental health needs: College counseling experiences and academic success. *Journal of College Student Development, 59*(1), 3-20. doi: 10.1353/csd.2018.0001
- Sharkin, B. S. (1997). Increasing severity of presenting problems in college counseling centers: A closer look. *Journal of Counseling & Development, 75*, 275-280.
- Shaw-Zirt, B., Popali-Lehane, L., Chaplin, W., & Bergman, A. (2005). Adjustment, social, skills, and self-esteem in college students with symptoms of ADHD. *Journal of Attention Disorders, 8*(3), 109-120. doi: 10.1177/1087054705277775
- Smith, M. A. & Baker, R. W. (1987). Freshman decidedness regarding academic major and adjustment to college. *Psychological Reports, 61*(3), 847-853. doi: 10.2466/pr0.1987.61.3.847
- Stamp, L., Banerjee, M., & Brown, F. C. (2014). Self-advocacy and perceptions of college readiness among students with ADHD. *Journal of Postsecondary Education and Disability, 27*(2), 139-160.
- Stewman, C. G., Liebman, C., Fink, L., & Sandella, B. (2018). Attention deficit hyperactivity disorder: Unique considerations in athletes. *Sports Health, 10*(1), 40-46. doi: 10.1177/1941738117742906
- Stirling, A. E., Kerr, G. A. (2008). Defining and categorizing emotional abuse in sport. *European Journal of Sport Science, 8*(4), 173-181. doi: 10.1080/17461390802086281



- Stirling, A. E., & Kerr, G. A. (2013). The perceived effects of elite athletes' experiences of emotional abuse in the coach-athlete relationship. *International Journal of Sport and Exercise Psychology, 11*, 87-100. doi:10.1080/1612197X.2013.752173
- St-Pierre, R., Temcheff, C., Gupta, R., Derevensky, J., & Paskus, T. (2014). Predicting gambling problems from gambling outcome expectancies in college student-athletes. *Journal of Gambling Studies, 30*(1), 47-60. doi:10.1007/s10899-012-9355-4
- Tavernier, R. & Willoughby, T. (2014). Bidirectional associations between sleep (quality and duration) and psychosocial functioning across the university years. *Developmental Psychology, 50*(3), 674-682. doi: 10.1037/a0034258
- Thombs, D. L. (2000). A test of the perceived norms model to explain drinking patters among university student athletes. *Journal of American College Health, 49*(2), 75-83. doi: 10.1080/07448480009596287
- Udry, E., Gould, D., Bridges, D., & Beck, L. (1997). Down but not out: Athlete responses to season-ending injuries. *Journal of Sport & Exercise Psychology, 19*, 229-248.
- U.S. Government Accountability Office. (2009). *Higher education and disability: Education needs a coordinated approach to improve its assistance to schools in supporting students*. Report to the chairman, committee on education and labor, house of representatives. Retrieved from: <http://www.gao.gov/>
- van Rooij, E., Jansen, E., van de Grift, W. (2018). First-year university students' academic success: The importance of academic adjustment. *European Journal of Psychological Education, 33*, 749-767. doi: 10.1007/s10212-017-0347-8

- Walker III, J. V. & Peterson, G. W. (2012). Career thoughts, indecision, and depression: Implications for mental health assessment in career counseling. *Journal of Career Assessment, 20*(4), 497-506. doi: 10.1177/1069072712450010
- Wechsler, H., Davenport, A. E., Dowdall, G. W., Grossman, S. J., & Zanakos, S. I. (1997). Binge drinking, tobacco, and illicit drug use and involvement in college athletics: A survey of students at 140 American colleges. *Journal of American College Health, 45*(5), 195-200. doi: 10.1080/07448481.1997.9936884
- Weigand, S., Cohen, J., & Merenstein, D. (2013). Susceptibility for depression in current and retired student athletes. *Sports Health, 5*(3), 263-266. doi: 10.1177/1941738113480464
- Weyandt, L. L., & DuPaul, G. (2006). ADHD in College Students. *Journal of Attention Disorders, 10*(1), 9-19. doi: 10.1177/1087054705286061
- Wilson, G., & Pritchard, M. (2005). Comparing sources of stress in college student athletes and non-athletes. *Athletic Insight The Online Journal of Sport Psychology, 7*(1), 1-8.
- Wolanin, A., Hong, E., Marks, D., Panchoo, K., & Gross, K. (2016). Prevalence of clinically elevated depressive symptoms in college athletes and difference by gender and sport. *British Journal of Sports Medicine, 50*(3), 167-171. doi: 10.1136/bjsports-2015-095756
- Yang, J., Peek-Asa, C., Corlette, J. D., Cheng, G., Foster, D. T., & Albright, J. (2007). Prevalence of and risk factors associated with symptoms of depression in competitive collegiate student athletes. *Clinical Journal of Sport Medicine, 17*(6), 481-487. doi: 10.1097/JSM.0b013e31815aed6b

**APPENDICES**

**APPENDIX A**  
**RESEARCH DOCUMENTATION**

### **American College Health Association Disclaimer**

The opinions, findings, and conclusions reported in this dissertation are those of the author, and are in no way meant to represent the corporate opinions, views, or policies of the American College Health Association (ACHA). ACHA does not warrant nor assume any liability or responsibility for the accuracy, completeness, or usefulness of any information presented in this dissertation.

**Information on Darden College of Education and Professional Studies Exempt Research****Status**

**From:** Laura Chezan <[no-reply@irbnet.org](mailto:no-reply@irbnet.org)>

**Sent:** Wednesday, July 10, 2019 12:39 PM

**To:** Schwitzer, Alan M.

**Subject:** IRBNet Board Action

Please note that Old Dominion University Education Human Subjects Review Committee has taken the following action on IRBNet:

Project Title: [1455972-1] A comparison of student-athletes with ADHD and non-student athletes with ADHD...

Principal Investigator: Alan Schwitzer, PHD

Submission Type: New Project

Date Submitted: June 14, 2019

Action: APPROVED

Effective Date: July 10, 2019

Review Type: Exempt Review

Should you have any questions you may contact Laura Chezan at [lchezan@odu.edu](mailto:lchezan@odu.edu).

Thank you,  
The IRBNet Support Team

**APPENDIX B**  
**DESCRIPTIVE TABLES**

Table 3

*Participants' Demographics: Race/Ethnicity (n=4513)*

Characteristic	Nonathlete		Student-Athlete	
	<i>n</i>	%	<i>n</i>	%
<b>Race/Ethnicity</b>				
White	3290	80.657	356	82.028
Black	141	3.457	28	6.452
Hispanic or Latino/a	443	10.861	35	8.065
Asian or Pacific Islander	335	8.213	21	4.839
American Indian, Alaskan Native, or Native Hawaiian	97	2.378	9	2.074
Biracial or Multiracial	275	6.742	24	5.530
Other	129	3.163	10	2.304



Table 5

*Means and Standard Deviations for Dependent Variables*

Dependent Variable	Nonathlete			Student-Athlete		
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>
Academic Adjustment	47.43	11.269	4069	45.07	11.526	431
Depression Diagnosis	.47	.499	4049	.38	.485	429
Depression	30.76	7.758	4000	29.22	9.177	421
Severity of Mental Health Concerns	4.48	4.645	4077	4.41	4.649	4509
Receiving University Mental Health Services	.36	.479	4071	.33	.470	433
Future Mental Health Help-seeking	.85	.362	4070	.77	.419	433
Level of Stress	3.86	.802	4077	3.75	.868	433
Complexity of Mental Health Concerns	2.38	2.199	4077	2.03	2.306	432
Complexity of College Life Concerns	4.75	3.212	4078	3.99	3.121	432

Table 6

*Intercorrelations for Continuous Dependent Variables*

Measure	1	2	3	4	5	6
1. Academic Adjustment	—					
2. Depression	.374	—				
3. Severity of Mental Health Concerns	.404	.292	—			
4. Complexity of Mental Health Concerns	.422	.302	.916	—		
5. Complexity of College Life Concerns	.588	.434	.336	.370	—	
6. Level of Stress	.412	.360	.261	.278	.477	—

*Note.* All coefficients are significant at  $p < .01$ .

**APPENDIX C**  
**ANALYSIS TABLES**

Table 7

*Univariate Analysis of Variance Summary Table for the Effects of Gender and Athletic Status on Academic Adjustment*

Variable and Source	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>	$\eta_p^2$
Gender	1	15918	15918	128.690	< .001	.028
Athletic Status	1	1917.700	1917.700	15.504	< .001	.003
Error	4491	5.6E+5	123.690			

Table 8

*Summary of Logistic Regression Analysis for Depression Diagnosis*

Step and predictor variable	<i>B</i>	<i>SE</i>	<i>p</i>	<i>OR</i>	95% CI	<i>R</i> <sup>2</sup>
Step 2						0.039
Gender	-0.829	0.066	<.001	0.436	[0.384, 0.496]	
Athletic status	-0.381	0.106	<.001	0.683	[0.555, 0.842]	

*Note.* CI = confidence interval for odds ratio (*OR*).

Table 9

*Univariate Analysis of Variance Summary Table for the Effects of Gender and Athletic Status on Depression*

Variable and Source	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>	$\eta_p^2$
Gender	1	5158.300	5158.300	84.107	< .001	.019
Athletic Status	1	858.610	858.610	14.000	< .001	.003
Error	4412	2.7E+5	61.331			

Table 10

*Univariate Analysis of Variance Summary Table for the Effects of Gender and Athletic Status on Severity of Mental Health Concerns*

Variable and Source	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>	$\eta_p^2$
Gender	1	3942.700	3942.700	19.590	< .001	.041
Athletic Status	1	190.050	190.050	9.187	.002	.002
Error	4499	93069	20.687			

Table 11

*Univariate Analysis of Variance Summary Table for the Effects of Gender and Athletic Status on Level of Stress*

Variable and Source	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>	$\eta_p^2$
Gender	1	54.271	54.271	84.508	< .001	.018
Athletic Status	1	4.983	4.983	7.759	.005	.002
Error	4500	2889.900	.642			

Table 12

*Summary of Logistic Regression Analysis for Receiving University Mental Health Services*

Step and predictor variable	<i>B</i>	<i>SE</i>	<i>p</i>	<i>OR</i>	95% CI	$R^2$
Step 2						0.014
Gender	-0.519	0.068	<.001	0.595	[0.521, 0.680]	
Athletic status	-0.125	0.108	0.248	0.883	[0.714, 1.091]	

*Note.* CI = confidence interval for odds ratio (*OR*).

Table 13

*Summary of Logistic Regression Analysis for Future Mental Health Help-seeking*

Step and predictor variable	<i>B</i>	<i>SE</i>	<i>p</i>	<i>OR</i>	95% CI	<i>R</i> <sup>2</sup>
Step 2						0.016
Gender	-0.632	0.082	<.001	0.531	[0.452, 0.624]	
Athletic status	-0.470	0.124	<.001	0.625	[0.490, 0.797]	

*Note.* CI = confidence interval for odds ratio (*OR*).

Table 14

*Means and Standard Deviations for Nonathletes and Student-Athletes on Previous Providers of Psychological or Mental Health Services*

Mental Health Provider	Nonathlete			Student-Athlete		
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>
Counselor/Therapist/ Psychologist	1.68	.467	4065	1.60	.490	431
Psychiatrist	1.44	.497	4047	1.33	.471	428
Other Medical Provider	1.38	.485	4046	1.32	.468	429
Minister/Priest/Rabbi/ Other Clergy	1.09	.282	4012	1.09	.281	428

Table 15

*Univariate Analysis of Variance Summary Table for the Effects of Gender and Athletic Status on Complexity of Mental Health Concerns*

Variable and Source	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>	$\eta_p^2$
Gender	1	983.900	983.900	211.010	< .001	.045
Athletic Status	1	46.406	46.406	9.952	.002	.002
Error	4499	20978	4.663			

Table 16

*Univariate Analysis of Variance Summary Table for the Effects of Gender and Athletic Status on Complexity of College Life Concerns*

Variable and Source	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>p</i>	$\eta_p^2$
Gender	1	1195.871	1195.871	119.667	< .001	.026
Athletic Status	1	217.944	217.944	21.809	< .001	.005
Error	4500	44970.006	9.993			



## VITA

SONJA LUND  
 7405 E. Kenmore Drive, Apt. 1  
 Norfolk, VA 23505  
 (757) 613-9079  
 slund008@odu.edu

---

### EDUCATION

---

- |  |             |
|--|-------------|
| <b>Doctorate of Philosophy in Counselor Education</b><br>Old Dominion University, Norfolk, VA  | August 2019 |
| <b>Master of Science in Education</b><br><b>Concentration:</b> Clinical Mental Health Counseling<br>Old Dominion University, Norfolk, VA | May 2015    |
| <b>Bachelor of Science in Psychology</b><br>Old Dominion University, Norfolk, VA<br><i>Magna Cum Laude</i>                               | Dec 2011    |

### CLINICAL AND RELATED EXPERIENCE

---

- Licensed Professional Counselor Resident** | Old Dominion University, Norfolk, VA  
*Department of Athletics—Student-Athlete Academic Services* (August 2016—August 2018)
- Provided weekly individual counseling sessions for approximately 20-30 student-athletes using a time limited model of care
  - Developed and wrote treatment plans for each client; documented and maintained case notes
  - Created an emergency protocol and de-escalation plans, an operations manual, informed consent documentation, and other standard forms
  - Created and implemented an in-house counseling office specifically for student-athletes
  - Provided psychoeducation about mental health to staff and conducted suicide risk assessment training to staff bi-annually
  - Conducted baseline assessments for all incoming freshman and transfer students
  - Recruited master's and doctoral level interns to work at the student-athlete counseling office
  - Participated in weekly supervision and provided supervision to one doctoral level intern and two master's level interns
  - Consulted with teams and coaches and provided psychoeducational groups for various sports teams
  - Collaborated with other offices on campus to advocate for student-athlete issues

**Process Group Leader** | Old Dominion University, Norfolk, VA  
*Counseling and Human Services* (August 2017—November 2017)

- Served as the group leader for five human services undergraduate students for approximately 10 weeks
- Wrote in-depth process notes to discuss group themes, empathic failures and repairs, and patterns of communication
- Facilitated discussions on communication and other topics as deemed necessary by the group
- Focused group on “here and now” processing

**Counseling Intern** | Old Dominion University, Norfolk, VA

*Office of Educational Accessibility & Department of Athletics* (August 2014—May 2015)

- Assisted students in obtaining and using their accommodations and observed and administered psychological tests
- Provided individual counseling to students and student-athletes registered with the Office of Educational Accessibility
- Organized/lead a monthly Autism in the Movies discussion group
- Completed intakes for the office of Educational Accessibility which includes assigning accommodations for students based on their disability
- Assisted students with organization, time management, and other skills for academic success
- Taught students how to create simple, obtainable, and achievable goals and assisted with students with scribing

**Support Staff** | Hope House Foundation Norfolk, VA | (January 2012—March 2016)

- Assisted and taught adults with developmental disabilities activities of daily living
- Implemented behavioral support plans
- Administered medications and provided routine medical care
- Engaged clients within the community in which they resided

**Counseling Intern** | Sentara Careplex Hospital Hampton, VA | (May 2014—August 2014)

- Provided individual counseling to individuals in the chemo, radiology, and infusion areas
- Participated in pet therapy sessions
- Provided group counseling for Lung Cancer Support Groups
- Participated in weekly supervision

**Psychology Intern** | Mediation Center of Hampton Roads | (May 2010—August 2010)

- Participated in mediation sessions between parties
- Reviewed and drafted mediation agreements and assembled company newsletters
- Supervised visitation between parents and children
- Lead cooperative co-parenting and anger management groups

**UNIVERSITY WORK EXPERIENCE**

---

**Academic Advisor & Co-Director** | Old Dominion University, Norfolk, VA  
*Career and Academic Resource Center* (August 2016—Present)

- Provide academic and career advising to a caseload of approximately 100 human services undergraduate students
- Meet with students at least once a semester to discuss and develop academic and career plans
- Ensure students are meeting departmental and university requirements and develop academic plans for students who failed to meet academic requirements
- Coordinate with various campus offices, such as educational accessibility, to ensure advisees are receiving the appropriate accommodations in class
- Assists in the training of 1-2 new advisors each semester and facilitate advising sessions for new student and transfer student orientations
- Maintain up-to-date advising records through an online database, create work schedule for approximately 7 advisors, and participate in monthly meetings

**Graduate Assistant** | Old Dominion University, Norfolk, VA

*Office of Educational Accessibility* (August 2013—May 2015)

- Managed note sharing, electronic textbook, and golf cart transportation programs.
- Conducted intakes and assisted with the provision of accommodations to students.
- Organized and led workshops for freshmen

**Graduate Assistant** | Old Dominion University, Norfolk, VA

*Customer Relations* (June 2014—September 2014)

- Answered general financial aid and account related questions from college students and parents during Freshman Preview
- Advised students and parents about tuition payment options and submitted financial aid documents on behalf of students
- Set up and broke down rooms for Freshman Preview

## **SUPERVISION EXPERIENCE**

---

**Supervisor** | Old Dominion University, Norfolk, VA

*Department of Athletics* (January 2017—May 2018)

- Provided training to all incoming masters' and doctoral level practicum and internship students.
- Provided as needed supervision for all masters' and doctoral level practicum and internship students, ranging from one to two students a semester.

**Supervisor** | Old Dominion University, Norfolk, VA

*Department of Counseling and Human Services* (January 2017—May 2017, September 2018-May 2019)

- Provided weekly individual and triadic clinical supervision for three masters' level students.
- Reviewed counseling tapes, case conceptualizations, and case presentations and provided feedback on counseling skills
- Utilized the discrimination model of supervision to facilitate professional and personal growth of supervisees
- Provided midterm and end of semester evaluations for each supervisee
- Consulted with faculty supervisors concerning supervisee progress and areas for growth

## UNIVERSITY TEACHING EXPERIENCE

---

### Graduate Courses Co-Taught

- Mental Health Counseling SU 2018
- Family Systems and Family Development SP 2018

### Graduate Courses Co-Taught Online

- Family Systems and Family Development SU 2018

### Undergraduate Courses Taught as Primary Instructor

- Interpersonal Relationships SP 2019
- Career Development and Appraisal SP 2018, FA 2017
- Psychoeducational Groups FA 2018, SP 2017

### Undergraduate Courses Co-Taught

- Substance Abuse and Treatment FA 2016
- Substance Abuse Treatment and Research FA 2016

### Undergraduate Courses Co-Taught Online

- Interpersonal Relations SU 2018
- Introduction to Human Services SU 2017
- Substance Abuse and Treatment FA 2016

### Undergraduate Courses Co-Developed

- Crisis Intervention, Prevention, & Ethics FA 2016

## PRESENTATIONS & WORKSHOPS

---

1. **Lund, S. K.** (2019, September). *College Student-Athletes: Mental Health Needs, Attitudes, Diversity, and Interventions Among the Population*. 50-minute presentation accepted at the European Branch of the American Counseling Association Conference, Vienna, Austria.
2. **Lund, S. K.** (2019, February). *The Impact of the Coach-Athlete Relationship: Implications for Student-Athlete Well-Being and Therapeutic Practice*. 90-minute presentation at the American College Counseling Association Conference, San Diego, CA.
3. Belcher, T. C., **Lund, S. K.**, Borden, N. J. (2019, February). *Trans, Black, and in College*. 90-minute presentation accepted at the American College Counseling Association Conference, San Diego, CA.
4. **Lund, S. K.** (2018, October). *This is Different: Supervising Counselors Working with College Student-Athletes*. 50-minute poster presentation at the Southern Association for Counselor Education and Supervision Conference, Myrtle Beach, SC.
5. **Lund, S. K.**, Belcher, T. C. (2018, February). *Meeting the Unique Mental Health Needs of College Student-Athletes: Integrating Our Services*. 90-minute presentation at the American College Counseling Association Conference, Charlotte, NC.
6. **Lund, S. K.**, Belcher, T. C. (2018, February). *It's Different for Me: Mental Health Disorders and College Student-Athletes*. Educational Session at the Virginia Association of Counselor Education

- and Supervision Graduate Student Conference, Lynchburg, VA.
7. Belcher, T. C., **Lund, S. K.** (2018, February). *Empathy 101: You Don't Know What You Don't Know*. Educational Session at the Virginia Association of Counselor Education and Supervision Graduate Student Conference, Lynchburg, VA.
  8. Belcher, T. C., **Lund, S. K.** (2017, October). *Forging a Path to Empathy in a Divided America*. Roundtable session, Association for Counselor Education and Supervision Conference, Chicago, IL.
  9. **Lund, S. K.** (2017, February). *Development of an In-house Mental Health Program for Student-Athletes That Utilizes LPC Residents and Interns*. Educational Session at the Virginia Association of Counselor Education and Supervision Graduate Student Conference, Norfolk, VA.
  10. **Lund, S. K.** (2017, November) *Mental Health Warning Signs in Athletes*. Athletic All-Staff Meeting. Old Dominion University, Norfolk, VA.
  11. **Lund, S. K.** (2017, September). *Mental Health & Student-Athletes*. Athletic Internship Training. Old Dominion University, Norfolk, VA.
  12. **Lund, S. K.** (2017, August). *Mental Health First Aid*. Athletic Academic Staff Retreat. Old Dominion University, Norfolk, VA.
  13. **Lund, S. K.** (2017, August). *Athletic Academic Advisor Burnout and Self-Care*. Athletic Academic Staff Retreat. Old Dominion University, Virginia.
  14. **Lund, S. K.** (2015, February). *Stress Management*. Office of Educational Accessibility Freshman Workshop Series. Old Dominion University, Norfolk, Virginia.
  15. **Lund, S. K.** (2014, October). *Managing Test Anxiety*. Office of Educational Accessibility Honors College Workshop Series. Old Dominion University, Norfolk, Virginia.
  16. **Lund, S. K.** (2014, October). *Effectively Dealing with Roommates*. Office of Educational Accessibility Freshman Workshop Series. Old Dominion University, Norfolk, Virginia

## **RESEARCH & PUBLICATIONS**

---

**Dissertation;** A comparison of college student-athletes with attention-deficit hyperactivity disorder (ADHD) and nonathletes with ADHD: Academic adjustment, severity of mental health concerns, and complexity of life concerns. (Anticipated August 2019)

### Online Professional Postings In Progress

1. Schwitzer, A. M., Burnett, D., Butler-Moss, C., St. John, D., Bertolett, C., Kalkbrenner, M. K., Jolley, A. L., and **Lund, S. L.** (2018). *College counseling and psychological services database*. Retrieved from: <http://www.myacpa.org/ccaps-knowledge-base>

## **GRANTS APPLIED FOR**

---

**National Collegiate Athletic Association (NCAA);** \$25,000 Innovations in Research and Practice Grant; 2018

## **PROFESSIONAL AFFILIATIONS**

---

**Member;** American Counseling Association; (2017-Present)

**Member;** American College Counseling Association; (2017-Present)  
**Member;** American College Health Association; (2019-Present)  
**Member;** Association for Counselor Education and Supervision; (2017-Present)  
**Member;** Association for Lesbian, Gay, Bisexual & Transgender Issues in Counseling; (2018-Present)  
**Member;** Association of Counseling Sexology and Sexual Wellness; (2019-Present)  
**Member;** Chi Sigma Iota International, Counseling Honor Society; (2013-Present)  
**Member;** Chi Sigma Iota—Omega Delta Chapter; (2013-Present)  
**Member;** National Association of Academic and Student-Athlete Development Professionals; (2017-Present)  
**Member;** National Center for Faculty Development & Diversity; (2017-Present)  
**Member;** Southern Association for Counselor Education and Supervision; (2017-Present)  
**Member;** Virginia Counselors Association; (2017-Present)

## **COMMITTEES**

---

**Member & Leader;** American College Counseling Association (ACCA) Diversity/Inclusion Committee Creative/Marketing Leader; 2019 Emerging Leader Grant Selection Committee (September 2018—Present)  
**Member;** Old Dominion University Athletic Department Title IX Ad Hoc Committee for Sexual Assault/Violence Prevention; (January 2018—January 2019)  
**Member;** National Association of Academic and Student-Athlete Development Professionals Research Committee; (June 2017—Present)

## **STUDENT ENGAGEMENT**

---

**Events Chair;** Chi Sigma Iota Honors Society; Old Dominion University; (August 2017—May 2019)  
**Professional Development Co-Chair;** Chi Sigma Iota Honors Society; Old Dominion University; (August 2014—May 2015)  
**Awards Committee Member;** Chi Sigma Iota Honors Society; Old Dominion University; (August 2013—May 2014)  
**Student Ally Certification;** Safe Space (LGBTQ); Old Dominion University; (Completed Spring 2015)  
**Master Advisor Certification;** Old Dominion University; (Completed Spring 2015)

## **AWARDS**

---

**2019 Outstanding Practitioner;** Omega Delta Chapter of Chi Sigma Iota; (May 2019)  
**2018 Outstanding Service to Chapter;** Omega Delta Chapter of Chi Sigma Iota; (May 2018)  
**2018 Emerging Leader;** American College Counseling Association; (February 2018)  
**2015 Student Engagement and Enrollment Services Champion;** Old Dominion University; (May 2015)

## **COMMUNITY INVOLVEMENT**

---

**Volunteer;** Association for Counselor Education and Supervision Conference; Chicago, IL; (2017)

**Volunteer;** The Saint Bernard Project (SBP)—House Rebuild Project; New Orleans, LA; (2017)

**Volunteer;** Vacation Bible School—Wesley Grace United Methodist Church; Norfolk, VA; (2017)

## **COMPUTER SKILLS**

---

- **Microsoft Office Professional-** Excel, OneNote, Outlook, PowerPoint, Publisher, Word
- **Blackboard-**resource and student access software
- **Dropbox-**file storing and sharing software
- **Google Drive-**file storing and sharing software
- **Leonline-** student and faculty information system
- **SPSS-**statistical analysis program
- **Banner** – student information system
- **My Advisor** – advising interface