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College Counseling Center Treatment Outcomes:  
A Comparison of Student Athletes and General Population Students

Mariah M. Bullock

A dissertation submitted to the faculty of  
Brigham Young University  
in partial fulfillment of the requirements for the degree of  
Doctor of Philosophy

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## ABSTRACT

### College Counseling Center Treatment Outcomes: A Comparison of Student Athletes and General Population Students

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**Background:** Several college students experience psychological distress and access college counseling center services every year. A subgroup of this population, collegiate student-athletes, experience unique stressors and protective factors but are less likely to engage in those same services. Mental health research on this subpopulation is still sparse and yields mixed findings, particularly treatment outcome research.

**Objective:** This study aimed to compare the treatment outcomes of student-athletes and general population students.

**Method:** Participants were 10,566 college students (ages 18-26) from 139 universities in the United States that obtained routine psychological treatment at their college counseling center. Approximately 55% of the sample identified as female, 44% as male, and less than 1% identified as transgender or self-specified. The ethnicity of the sample was approximately 76% White, 10% African American/Black, 5% Hispanic/Latino, 3% Asian/Asian American, 4% Multiracial, 1% Self-identified, <1% American Indian/Alaska Native, and <1% Native Hawaiian/Pacific Islander. The measures used for this study were the Standardized Data Set (SDS) and the Counseling Center Assessment of Psychological Symptoms (CCAPS-62). Differences in the number of sessions attended, initial distress at intake, and change in symptoms were calculated between the two groups along eight domains of distress.

**Results:** 8% of the sample identified as student-athletes. There are no differences in the number of sessions attended. Student-athletes entered treatment self-reporting lower levels of distress on all eight domains of the CCAPS-62. Student-athletes reported greater symptom improvement in five of the eight domains of the CCAPS-62 and no differences in the other three. There were no differences between the two groups in the proportion of participants that recovered, reliably improved, did not change, or deteriorated across treatment.

**Conclusions:** Although student-athletes are accessing psychological treatment less frequently, they may be able to experience the same or better outcomes than their general population peers tend to when they do.

**Keywords:** psychotherapy, college counseling center, athletes, treatment outcome

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College Counseling Center Treatment Outcomes:  
A Comparison of Student Athletes and General Population Students

### **Introduction**

#### **College Student Mental Health**

Many college students experience severe psychological problems (American College Health Association, 2008; Drum, Brownson, Burton, & Smith, 2009). Research examining this population has found college students to be at a higher risk of developing mental health problems than high school students (Downs & Ashton, 2011). This may be due to the unique stressors related to college, including pressure to maintain academic achievement, adjusting to living away from family, new interpersonal relationships, time constraints, and searching for employment.

To meet the mental health needs of this population, most universities and colleges have on-campus counseling centers. In 2014 there were approximately 17.3 million college students enrolled in the United States. A reported 1.8 million students who are enrolled in college in the United States seek help from counseling centers each year (American College Health Association, 2008). Of those students seeking treatment, anxiety and depression are the most common presenting concerns. Recent studies found that 51% of students feel overwhelming anxiety, 45% feel hopeless, 31% felt so depressed it was difficult to function, 7% seriously considered suicide, and 6% engaged in intentional self-harming behaviors (Locke, Bieschke, Castonguay, & Hayes, 2012). Additionally, self-harm, suicidal ideation, and suicide attempts have continually increased in frequency over the past five years (2017 Annual Report, 2018). In addition to the substantial mental and emotional effects, those who are being treated in these centers report that their mental health concerns also have moderate to severe impacts on their academic and social lives (Krumrei, Newton, & Kim, 2010). College students are experiencing



several mental health concerns and there is a pressing demand and need for psychological treatment of this population to mitigate the negative effects.

There are many positive psychological and academic outcomes for those who participate in psychotherapeutic counseling on college campuses. One study found that those receiving treatment experienced moderate improvement from intake to their last session, a positive correlation between the number of sessions and overall improvement, and 50% of the sample experienced reliable change (Draper, Jennings, Baron, Erdur, & Shankar, 2002). Other benefits of receiving treatment from college counseling centers include reduced rates of suicide to 1/3 of what it would be for those not seeking treatment (Schwartz, 2006). There are also nonpsychological benefits to counseling. Lee, Olson, Locke, Michelson, and Odes (2009) found that while counseling experience did not affect GPA, it increased the retention rate of college students. According to the existing evidence, there appears to be multiple positive outcomes for those who engage in therapy on college campuses.

### **Student-Athletes as a Unique Subgroup**

Within the broader college student population exists a subgroup that is relatively understudied in mental health, and particularly in regard to treatment outcome. This subgroup is collegiate student-athletes. There are more than 460,000 student-athletes that compete in the National Collegiate Athletic Association (NCAA), which is a three-division athletic organization that consists of 1,268 North American schools, institutions, conferences, or other associations (“Student-Athletes”). According to the most recent survey from the American College Health Association’s National College Health Assessment, about 5% of collegiate students identified as being a varsity student athlete (“American College Health Association,” 2019). There are several differentiating factors between this subgroup and the general college student population. In

addition to the general college-related stressors, student athlete-specific stressors include attending multiple daily practices and performances, injury, maintaining academic performance and scholarships with increased travel and absences, pressure to win, increased public attention, unique identity challenges, academic stereotype threat, unique interpersonal relationships with coaches and teammates, recruitment for professional contracts, balancing social relationships with the isolation of academic pursuits, and the termination of one's career, which many students feel as a loss of identity (Broughton & Neyer, 2001; Harrison et al., 2009; Lu, Hsu, Chan, Cheen, & Kao, 2012; Rolo & Gould, 2007; Wolanin, Gross, & Hong, 2015; Yang et al., 2007; Yukhymenko-Lescroart, Brown, & Paskus, 2015). Each of these stressors can contribute to decreased emotional, psychological, and social well-being and potentially act as risk factors for mental health problems. Earlier studies reported that 10-15% of student athletes experience psychological distress that warrants professional intervention, in comparison to the campus average of 8-9% (Gallagher, 2005; Parham, 1993). With increasing rates of college students seeking mental health treatment over the years, this number is likely higher now. Many student-athletes find participation in their sport to be rewarding. However, a growing number will also experience adjustment problems, emotional concerns, and psychological distress as a result of this participation (Watson, 2005).

When considering the health of student athletes, it is common to focus solely on their physical and medical condition. There are indeed many studies regarding the nature and impact of injuries on student athletes and athletic performance. However, the link between physical and mental health is dynamic and bidirectional. Physical problems often have psychological consequences. Psychological problems, such as eating disorders or substance abuse, can have physical consequences as well. Sports injury, especially, is the most extensively studied athlete-

specific stressor related to athletes' mental health and seems to have a significant negative impact (Wolanin, Gross, & Hong, 2015). One study found that when athletes went to sports medicine physicians for a physical injury, 80% of them also mentioned psychological symptoms from the injury (Mann, Grana, Indelicato, O'Neill, & George, 2007). One of the most frequently studied sport injuries linked to mental health difficulties is that of concussions. Several studies have found a strong link between concussions and depression (Hart et al., 2013; Kerr, Marshall, Harding, & Guskiewicz, 2012; Strain et al., 2013) and new research is suggesting that non-concussion injuries may have similar mental health effects (Putukian, 2016). Not only do student athletes experience the same stressors as their collegiate peers, but they are also subject to added risk of mental illness from the physical aspects of their sport.

Studies comparing the prevalence of mental illness between general population students and student athletes often reach different conclusions. There is some evidence to suggest that student athletes have poorer mental health when compared to their non-athlete peers. One study found that, when compared to the general college population, student athletes typically report being at an equal or higher risk of experiencing mental health problems (Sudano, Collins & Miles, 2016). Similarly, general population students report higher levels of wellness than student-athletes (Watson & Kissinger, 2007). Other research has indicated that student athletes experience depression at higher rates than the general student population (Reardon & Factor, 2010). There also seem to be some differences in externalizing problems. In terms of alcohol use, college-aged athletes engage in heavier alcohol use, more frequent alcohol abuse and binge drinking as well as engage in more alcohol-related risk behaviors (Martens, Dams-O'Connor, & Beck, 2006). Athletes also typically show high levels of hostility, bullying, and aggression (Gage, 2008; Steinfeldt & Steinfeldt, 2012).

At the same time, there is also an existing literature that shows that college student athletes experience similar or lower rates of mental illness than the general population. Some of this research suggested that student athletes experience lower or similar rates of depression compared to the general student population (Armstrong & Oomen-Early, 2009). Another study reported that although female athletes experience higher levels of anxiety and depression and lower levels of social support on average when compared to non-athlete college students, there was no difference in clinically significant levels of the same factors (Storch, Storch, Killiany, & Roberti, 2005). Some evidence also suggests that there are no differences in the prevalence of eating disorders between college athletes and non-athletes. Still more research shows that student-athletes presented with lower prevalence rates of eating disorders or had a more positive body image than their non-athlete peers (DiBartolo & Shaffer, 2002; Hausenblas & Downs, 2001; Kirk, Singh, & Getz, 2011).

Discrepancies in results may be due to the different resources allotted to athletes at a particular university. In general, student athletes have access to more resources than the typical student. The amount and range of these resources varies greatly depending on the university or college. Some resources unique to student athletes include sports scholarships, additional need-based financial aid, free tutoring, physical therapy services, free meals on campus, and special access to a psychologist or sports psychologist (“Student-Athletes”). Additionally, team membership and physical exercise have shown to improve mental well-being (Downs & Ashton, 2011; Morgan, Parker, Alvarez-Jimenex, & Jorm, 2013; Watson & Kissinger, 2007). The differences in rates of mental illness between student athletes and general population students are unclear and warrant further study to paint a clearer picture of this comparison.

Despite the growing demand for psychological services and added stressors that student-athletes experience, there is some evidence to suggest differences in help-seeking behavior. Research indicates that college athletes use psychological services less often than non-athlete students (Watson, 2006). There are several potential reasons that could explain the lower rates of help seeking in this population, including increased stigma, lack of knowledge about mental health, negative past experiences of help seeking, and time management (Kaier, Cromer, Johnson, Strunk, & Davis, 2015; Watson, 2006). Athletes are raised in an environment that emphasizes resilience and self-reliance, implicitly and sometimes explicitly indicating weakness if one needs to resort to external assistance (Etzel, Ferrante, & Pinkney, 1996). Admitting personal needs or weaknesses could also be seen as an impediment to their athletic performance, jeopardizing their playing time, and influencing the trust their coaches and teammates have in them (Etzel, Pinkney, & Hinkle, 1994). Athletes may also seek help less frequently because athletic departments can sometimes work as independent agencies. This may result in sending athletes to athletic staff or teammates for emotional support rather than trained professionals that specialize in psychological treatment (Ferrante, Etzel, & Lantz, 1996). One study did find that student athletes are more likely to seek treatment when referred by a family member rather than a coach, teammate, or self-referral (Wahto, Swift, & Whipple, 2016), which could be helpful in addressing these barriers.

With regard to treatment outcome research for student athletes, the majority of existing research focuses on the effects of psychological skills training and mindfulness on specific performance outcomes. The results of its effectiveness are mixed. Two randomized control trials (RCT) investigating the effects of psychological skills training on performance found no differences in outcome (Madden & Mc Gown, 1988; Noel, 1980). However, more recent studies

looking at the same question found improvements in outcome (DeWitt, 1980; Howard & Reardon, 1986; Thelwell & Maynard, 2003; Thelwell, Weston, & Greenlees, 2010). Further, four RCTs specifically investigating the effects of mindfulness interventions on performance found improvements in outcome (Aherne, Moran, & Lonsdale, 2011; John, Verma, & Khanna, 2011; Moghadam, Sayadi, Samimifar, & Moharer, 2013; Scott-Hamilton, Schutte, & Brown, 2016). These mixed results can partially be explained by the difficulty in operationalizing and measuring sport performance as well as the fact that athletic performance is influenced by a variety of factors. It appears that, although student-athletes are seeking out mental health treatment less frequently, there is some evidence to suggest that they receive benefits when they do.

The treatment outcome research examining effects on sport performance is sparse, but even less is known about the psychological outcomes of psychotherapy in college counseling centers for student athletes. It is important to not only study the effect of mental health treatment on sport performance but also the effect it has in lowering mental health symptom distress as well as improving psychological functioning and well-being. Student-athletes are a unique population and may have different psychological needs compared to their non-athlete student peers. They also appear to be using these services less frequently. Thus, it is unclear whether mental health outcome studies focused on general student populations can generalize to student-athletes. Although some research exists on how psychological treatment effects sports performance, there appears to be no data examining the psychological benefits and outcomes of mental health treatment for student athletes and how it compares to the general population. This study, as further explained in the study aims section, sought to help better understand student-

athlete mental health and whether unique practices and considerations are needed for this subpopulation.

### **Study Aims**

The primary aim of this study was to compare and contrast mental health outcomes between student-athletes and general population students receiving treatment at college counseling centers across the United States using data from an archival data set. This study examined potential differences between college aged general population students and student athletes in a) average number of sessions attended, (b) subdomain scores pre-treatment, and c) treatment outcome. Treatment outcome was measured as change from their first to last measured CCAPS-62 score for each subdomain. Treatment outcome was also measured by analyzing if athlete status differentially predicted whether or not an individual recovered, improved, did not change, or deteriorated over the course of treatment according to the criteria set forth by Jacobson and Truax (1991; further explanation in Method section).

The aim was that the results of this study, first and foremost, provide a clearer and more detailed picture of student-athletes' mental health prior to and over the course of psychological treatment as it compares to the general population. One hope was to add to the existing literature comparing prevalence rates between the two groups in order to work towards greater consistency in results. Another aim was to inform help-seeking behavior of student-athletes as to whether routine college counseling center services are effective for this subgroup, and therefore, if efforts need to be focused on increasing engagement. It is also the hope of the authors to inform researchers and practitioners as to whether typical college student outcome research can be generalized to student athletes or whether the attendance, presenting problems, or treatment outcome trajectory looks different for this subgroup, and therefore necessitates specific training,

targets, treatment planning, or interventions. Due to the dearth of research and conflicting findings in the current treatment outcome data for both student athletes and comparisons to their general population peers, this study was exploratory in nature and no formal or directional hypotheses were made.

### **Method**

The archival data were collected from the Center for Collegiate Mental Health (CCMH) database. CCMH is a collaborative, multidisciplinary organization that combines practice, research, and administration in order to accurately describe the mental health of collegiate students in the United States, conduct large-scale, multi-site research, improve clinical tools, and ultimately enhance the mental health services that are provided to college students in the university setting (Locke, Bieschke, Castonguay, & Hayes, 2012). CCMH is a member organization with more than 380 college and university counseling centers that contribute anonymous and standardized data on college students receiving their services.

### **Participants**

The original sample included 97,655 undergraduate college students from 139 universities across the United States who sought out mental health services at their college counseling center between 2013-2015. Of the total sample, 7,722 (8%) individuals self-identified as being a member of a varsity sport. Student-athletes and general population students were then matched on a 1:1 scale by age, year in school, gender, and race/ethnicity. Those that did not have a match were dropped ( $n = 87,089$ ). This resulted in a final sample of 10,228 matched participants ages 18-26 ( $M=20.4$ ,  $SD=1.4$ ). Demographic data were collected using the Standardized Data Set (SDS) described below. Approximately 54% of the sample identified as female, 45% as male, and less than 1% identified as transgender or self-specified. The ethnicity



of the sample was approximately 76% White, 10% African American/Black, 5% Hispanic/Latino, 3% Asian/Asian American, 4% Multiracial, 1% Self-identified, <1% American Indian/Alaska Native, and <1% Native Hawaiian/Pacific Islander.

## **Measures**

**Standardized Data Set.** The SDS is a set of standardized data materials used by college counseling centers during routine clinical practice to collect information that is typical of an initial intake session. The SDS has eight main components: Client Information, Provider Information, Center Information, Institution Information, Clinician Index of Client Concerns, Case Closure Form, and Appointment Categories. For this study, the SDS was used to retrieve age, gender, and ethnicity demographic information as well as student athlete status, academic status (what year in school) and type of treatment (individual, group, etc.).

**Counseling Center Assessment and Psychological Symptoms (CCAPS-62).** The Counseling Center Assessment of Psychological Symptoms (CCAPS-62) is a 62-item multidimensional self-report assessment measure created by counseling center staff specifically for college students (Locke et al., 2011). It measures eight factor-derived domains of psychological concern that are common to college students, including: depression, anxiety, academic distress, eating concerns, social anxiety, family concerns, substance use, and hostility. The CCAPS-62 also includes a Distress Index, which is a general measure of psychological distress and is comprised of 20 items from the subscales. The Distress Index was not used due to the redundancy of the items originating from the subscales. For the purposes of this study, the authors were more interested in investigating domain specific differences, which can provide more detail and nuance. Participants respond on a 5-point Likert scale from 0 (not at all like me) to 4 (extremely like me) in terms of how well an item describes the individual in the past two

weeks. The subscales and Distress Index are scored as an average of the involved item responses, with higher scores signaling higher levels of distress. The CCAPS-62 was created for an 8th grade reading level and takes 7-10 minutes to complete.

Internal consistency coefficients for the subscales of the CCAPS-62 ranged from acceptable to very good: Depression ( $\alpha = .913$ ), Eating Concerns ( $\alpha = .883$ ), Substance Use ( $\alpha = .853$ ), Generalized Anxiety ( $\alpha = .846$ ), Hostility ( $\alpha = .863$ ), Social Anxiety ( $\alpha = .823$ ), Family Distress ( $\alpha = .811$ ), and Academic Distress ( $\alpha = .781$ ). The CCAPS-62 has also shown to have good convergent validity with other well-established measures of similar distress domains such as the Alcohol Use Disorders Identification Test, the Beck Depression Inventory, the Beck Anxiety Inventory, and the Patient Health Questionnaire–9 as well as appropriately low correlations with unrelated domains (McAleavey, Nordberg, Hayes, et al., 2012). Correlations between subscale scores at test and retest were significant ( $p < .001$ ) for all subscales. Both 1- and 2-week test–retest reliability was acceptable, ranging from .76 for Academic Distress to .92 for Depression at two-week test-retest.

### **Treatment Outcome**

Treatment outcome was measured by evaluating the change in CCAPS-62 subdomain scores from first to last administration. In addition, treatment outcome was also categorized into four categories: deterioration, no change, reliable improvement, and recovery. According to Jacobson and Truax (1991), clinical significance is an important gauge of the effect of treatment when evaluating outcome. As a result, they developed a statistical index, referred to as the reliable change index (RCI) to determine whether the change in score on an outcome measure is likely to signify actual or clinically significant change. The exact reliable change index for each

CCAPS-62 subdomain can be found in the user manual (Center for Collegiate Mental Health, 2015).

Applying this index to repeated outcome measures, such as the CCAPS, it is possible to identify which clients are benefitting, not benefitting, or deteriorating over the course of therapy. Those participants that experienced reliable change as signified by a worsening of symptoms were labeled as “deteriorated.” Those who did not experience reliable change in either direction were labeled as “no change.” Those who experienced reliable change in the improvement of symptoms but were still above the clinical cutoff (Center for Collegiate Mental Health, 2015) were labeled as “reliably improved,” and those who experienced reliable improvement and fell below the clinical cutoff were labeled as recovered.

### **Procedure**

The CCAPS-62 and SDS were given to each client prior to the initial session. The CCAPS-62, but not the SDS, was then administered at subsequent sessions based on the counseling center and therapist’s typical practices. Participants received treatment as usual and no controls or adjustments were made for the purpose of this study.

### **Results**

All statistical analyses were performed in Stata 14.

#### **Difference in Number of Sessions**

The mean number of sessions for the entire sample was 3.88 (range: 1-83; median = 3; SD = 5.4), with about 29% of the sample attending only one session and about 60% of the sample attending four or fewer sessions. A negative binomial regression was used to examine the relationship between athlete status as the independent variable and the number of sessions attended as the dependent variable. This analysis was chosen to account for the right-skewed

count nature of the data. The results of this analysis are shown in Table 1. Results showed that there was no significant difference between the number of sessions attended by student athletes ( $M=3.98$ ;  $SD=4.84$ ) and general population students ( $M=3.80$ ;  $SD=4.45$ ).

Table 1

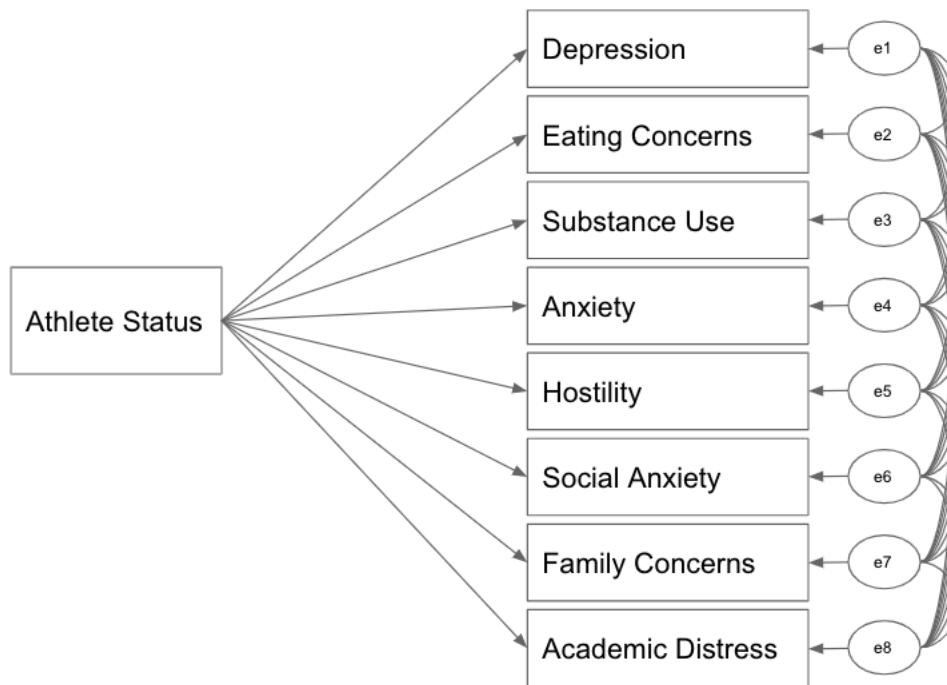
*Negative Binomial Regression Output for Differences in Number of Sessions*

	Coefficient	Standard Error	Z	P <  z	95% CI
Athlete Status	0.05	0.03	1.75	0.08	[-.01, .10]

*Note.* General population student = 0 and student-athlete = 1

### Differences in Pre-treatment CCAPS-62

The differences between student-athlete and general population student pretreatment CCAPS-62 subdomain scores were compared using structural equation modeling (See Figure 1). This analysis was used to accommodate the multivariate dependent variables, which were the eight CCAPS-62 subdomain scores, with athlete status as the predictor variable. The error terms of each subdomain were also covaried with one another in this model. The model fit indices were perfect ( $\chi^2 = 0.00$ ,  $p = 0.00$ ;  $RMSEA = 0.00$ ;  $CFI = 1.00$ ;  $TLI = 1.00$ ). This is because it was a saturated model and there are no degrees of freedom left to yield typical fit indices. Results showed that student-athletes entered treatment with lower self-reported levels of distress on all subdomains. Means and Standard deviations for each group are shown in Table 2, followed by the results of the structural equation modeling in Table 3. Student-athletes were .31 points lower on Depression ( $M = 1.5$ ;  $SD = .98$ ), .15 points lower on Eating Concerns ( $M = .89$ ;  $SD = .84$ ), .05 points lower on Substance Use ( $M = .81$ ;  $SD = .84$ ), .30 points lower on Anxiety ( $M = 1.54$ ;  $SD = .96$ ), .09 points lower on Hostility ( $M = .96$ ;  $SD = .86$ ), .33 points lower on Social Anxiety ( $M = 1.74$ ;  $SD = .97$ ), .18 points lower on Family Concerns ( $M = 1.13$ ;  $SD = .93$ ), and .25 points lower on Academic Distress ( $M = 1.79$ ;  $SD = 1.03$ ).



*Figure 1.* Structural Equation Model. The model used to identify differences between student athlete and general population students' CCAPS-62 scores prior to receiving treatment. The model uses athlete status as a predictor of each CCAPS-62 subdomain score. The circles represent the error terms, which are each covaried with one another.

Table 2  
*Means and SD of Pre-treatment CCAPS-62 Scores*

	Student-Athletes		General Population	
	M	SD	M	SD
Depression	1.35	.96	1.67	.97
Eating Concerns	.81	.82	.96	.85
Substance Use	.78	.81	.84	.85
Anxiety	1.38	.93	1.68	.97
Hostility	.91	.85	1.00	.86
Social Anxiety	1.56	.93	1.89	.98
Family Concerns	1.03	.91	1.22	.94
Academic Distress	1.66	1.02	1.91	1.03

Table 3

*Structural Equation Model Output for Differences in Pre-treatment CCAPS-62*

	Coefficient	Standard Error	Z	P >  z	95% CI
Depression	-.31	.02	-16.72	.00	[-.35, -.28]
Eating Concerns	-.15	.02	-9.46	.00	[-.19, -.12]
Substance Use	-.05	.02	-3.18	.00	[-.08, -.02]
Anxiety	-.30	.02	-16.42	.00	[-.34, -.27]
Hostility	-.09	.02	-5.45	.00	[-.12, -.06]
Social Anxiety	-.33	.02	-17.64	.00	[-.37, -.29]
Family Concerns	-.18	.02	-10.24	.00	[-.22, -.15]
Academic Distress	-.25	.02	-12.72	.00	[-.29, -.22]

*Note.* General population student = 0 and student-athlete = 1

### Differences in Treatment Outcome

A large portion of the sample only took the CCAPS-62 once, at intake. Of the 11,938 CCAPS-62 administrations, 9,702 of those were one-time administrations (81.27%). In order to look at change over time, all participants who did not complete at least two CCAPS-62 measures over the course of treatment were dropped from further analyses. This brought the sample to 863 participants, 503 general population students and 360 student-athletes. A two tailed z test of proportions was conducted to evaluate whether the proportion of student athletes and general population students that were dropped was different. The results of this analysis showed that there was no statistically significant difference ( $z = 1.15$ ). Of the remaining participants, differences between student-athletes and general population students in the amount of change on CCAPS-62 subdomain scores from first to last administration were analyzed using a mixed modeling analysis. This analysis was chosen to account for the fact that the data were nested within individuals. A separate analysis was run for each subdomain. The time from first to last CCAPS-62 administration was the independent variable and the subdomain score at the last CCAPS-62 administration was the dependent variable, while controlling for the first CCAPS-62

administration. Results showed that student-athletes significantly improved more than general population students by .22 points on Depression, .24 points on Anxiety, .35 points on Social Anxiety, .14 points on Family Concerns, and .28 points on Academic Distress from first to last CCAPS-62. There were no significant differences between student-athlete and general population students' change on Eating Concerns, Substance Use, and Hostility subdomain scores. The full results are shown in Table 4.

Table 4

*Mixed Modeling Output for Differential Change on CCAPS-62 Subdomain Scores*

	Coefficient	Standard Error	Z	P >  z	95% CI
Depression	-.22	.06	-3.82	.00	[-.33, -.11]
Eating Concerns	-.10	.06	-1.87	.06	[-.21, .01]
Substance Use	-.05	.05	-.91	.36	[-.15, .06]
Anxiety	-.24	.06	-4.14	.00	[-.36, -.13]
Hostility	.01	.05	.16	.87	[-.10, .11]
Social Anxiety	-.35	.06	-5.68	.00	[-.48, -.23]
Family Concerns	-.14	.06	-2.20	.03	[-.26, -.01]
Academic Distress	-.28	.06	-4.40	.00	[-.40, -.15]

*Note.* General population student = 0 and student-athlete = 1

Treatment outcome was also compared by categorizing the sample into four groups: recovered, reliably improved, no change, and deteriorated, as explained in the Methods section. The reliable change index (Jacobson & Truax, 1991; Center for Collegiate Mental Health, 2015) was used to group the sample based on the amount of change experienced from their first to last CCAPS-62 administration. Percentages of the total sample that fell into each of these four treatment outcome categories are shown in Table 5 as they apply for each subdomain. A large majority of the sample experienced no change from first to last CCAPS-62 administration across all subdomains, with the largest percent of recovery for the sample occurring with Depression, Hostility, and Academic Distress. A two-tailed z test of proportions was used to evaluate whether

or not there were differences in the proportion of student-athletes and general population students that fell into each of these categories for each subdomain. Results showed that there were no significant differences between student-athletes and general population students in terms of the proportion of participants that fell into the four treatment outcome categories for any of the CCAPS-62 subdomains.

Table 5

*Categorical Treatment Outcome for Total Sample by Subdomain*

	Recovered	Reliably Improved	No Change	Deteriorated
Depression	18%	3%	73%	6%
Eating Concerns	7%	1%	87%	5%
Substance Use	8%	2%	82%	8%
Anxiety	10%	2%	84%	4%
Hostility	14%	2%	78%	6%
Social Anxiety	9%	<1%	88%	4%
Family Distress	5%	2%	89%	4%
Academic Distress	13%	<1%	80%	8%

### Discussion

This study used psychological treatment data and demographic information of college students from college counseling centers across the United States to examine potential differences between general population students and student-athletes on number of sessions attended, pre-treatment symptom scores, and treatment outcomes. This study found that 8% of college students receiving psychological treatment from their college counseling center identified as student-athletes. Prior reported percentages of student-athletes receiving treatment was not found in the existing literature. This finding suggests that student athletes may actually be overrepresented in college counseling centers when compared to the 5% of college students that identified as student athletes in the recent past (“American College Health Association,” 2019).



This finding also provides some incentive to reevaluate more directly whether student athletes are still underutilizing psychological services when compared to their general population peers.

In response to the first study aim, results showed that there were no significant differences in the number of sessions attended by student-athletes and general population students. This finding was somewhat surprising given the existing literature that states that college athletes utilize psychological services less often than non-athlete students (Watson, 2006) for a variety of potential reasons (Etzel, Ferrante, & Pinkney, 1996; Etzel, Pinkney, & Hinkle, 1994; Ferrante, Etzel, & Lantz, 1996). Further, with the additional stress and time commitment of sport-related meetings, practices, and travel on student-athletes' schedules, one might expect that to minimize attendance as well. A potential explanation for this finding could be that, although it may be more difficult or less likely for student athletes to initiate treatment, once they are involved, they are just as likely to continue in treatment as other college students. Another explanation could be that, at some universities, there are not session limits for student-athletes or that they can be seen more frequently than general population students in order to accommodate their schedules. Lastly, it's also possible that general population students have similar time commitments compared to student-athletes in other academic, professional, or recreational activities.

The second question that was addressed by this study was whether or not there were differences between student-athletes and general population students on their initial self-reported ratings of distress in eight different subdomains: Depression, Anxiety, Social Anxiety, Hostility, Substance Use, Academic Distress, Family Distress, and Eating Concerns. Findings showed that student-athletes entered treatment at a statistically significant lower self-reported level of distress on all subdomains. This finding was surprising because the majority of the existing literature

indicates that student-athletes have equal or poorer mental health when compared to their non-athlete peers (Gage, 2008; Martens, Dams-O'Connor, & Beck, 2006; Reardon & Factor, 2010; Steinfeldt & Steinfeldt, 2012; Storch, Storch, Killiany, & Roberti, 2005; Sudano, Collins, & Miles, 2016; Watson & Kissinger, 2007). A strength that this study has over the existing literature is that it incorporates a larger, more nationally representative sample. Despite the growing number of student-athletes who report experiencing psychological distress as a result of participation in their sport (Watson, 2005), there may be more protective factors, such as financial aid and scholarships, medical services, team membership, and physical exercise that come from their athletic participation that can account for this finding (Downs & Ashton, 2011; Morgan, Parker, Alvarez-Jimenez, & Jorm, 2013; Watson & Kissinger, 2007). Another possibility may be that student-athletes are unaware of or underreport the severity of their symptoms, potentially due to the stigma in athletics, fear of appearing weak or incapable, or a fear of it affecting their future participation in their sport (Etzel, Ferrante, & Pinkney, 1996; Etzel, Pinkney, & Hinkle, 1994; Watson, 2006). There is evidence that student athletes either don't report or underreport physical injuries, most predominantly concussions, because they don't think the injury or symptoms are serious (Davies & Bird, 2015; Llewellyn, Burdette, Joyner, & Buckley, 2014; Sallis, Jones, & Knopp, 1992). A similar reporting style could potentially be present for psychological symptoms as well.

All of the known psychological treatment outcome research for student-athletes focuses on performance outcomes as a result of psychotherapy (Aherne, Moran, & Lonsdale, 2011; DeWitt, 1980; Howard & Reardon, 1986; John, Verma, & Khanna, 2011; Madden & Mc Gown, 1988; Noel, 1980; Thelwell & Maynard, 2003). To our knowledge, this study is the first that looked at psychological treatment outcome research and compared it to their general population

peers. This study found that student-athletes experienced more statistically significant improvement over the course of treatment in the subdomains of Depression, Anxiety, Social Anxiety, Family Distress, and Academic Distress. There were no differences in the amount of change between these groups for the subdomains of Eating Concerns, Substance Use, and Hostility. In other words, student-athletes benefitted from psychological treatment as much as or more than general population students in several domains. This result is made more pronounced by the fact that student athletes reported entering treatment at lower levels of distress, creating a potential basement effect for the amount of change that could occur over time for this group. Despite the lower baseline, they still reported experiencing increased improvement in comparison to their general population peers. This finding indicates that there may be something unique to student-athletes that helps them to improve more or more quickly. From this finding, as well as the results from intake CCAPS-62 scores, the differences between student-athletes and general population students seem to be the least pronounced in Eating Concerns, Substance Use, and Hostility. This is somewhat surprising given previous findings showing elevated levels of hostility and substance use among student-athletes (Gage, 2008; Martens, Dams-O'Connor, & Beck, 2006; Steinfeldt & Steinfeldt, 2012).

A second, more clinically practical method of determining treatment outcome was also analyzed in order to see if there were different proportions of student-athletes and general population students experiencing recovery, improvement, no change, and deterioration. These results showed that there were no differences between the two groups in terms of the proportion of participants that fell into each treatment outcome category. This analysis also showed that the large majority of participants did not experience significant change in symptoms in either direction (73%-89%), 7%-21% of participants experienced reliable improvement or recovery,

and 4%-8% deteriorated over the course of treatment. Although student-athletes experienced greater change in the majority of subdomains, it was not enough change to differentiate between outcome categories. The proportion of the sample that experienced reliable improvement is lower than some of the existing literature for college counseling centers (Draper, Jennings, Baron, Erdur, & Shankar, 2002), which may be accounted for by the low number of average sessions. It's possible that the sample did not stay in therapy long enough to receive maximum benefits.

### **Implications**

Although the existing literature claims that student-athletes are less likely to seek out psychological treatment (Watson, 2006), all of these findings indicate that they may achieve the same or better treatment outcomes and benefits when they do engage in the services. This finding can give student-athletes, and members of their community that may refer them to treatment, the confidence to pursue these services. Knowing the potential for symptom reduction, counseling center and athletic staff can allocate resources towards educating this population on the benefits of seeking psychological treatment and advocating for these services as a treatment for their distress in an effort to help minimize the discrepancy in utilization of services and increase the overall wellbeing of student-athletes. Athletics and psychological staff can also potentially allocate psychoeducational resources towards the family members of student athletes in an orientation context as an additional advocate and referral source (Wahto, Swift, & Whipple, 2016). Lastly, with the positive treatment outcomes experienced by student athletes in routine care, it appears that this subpopulation can receive benefits without unique and specialized interventions or treatment.

### **Limitations and Future Directions**

Due to the archival nature of this data, there are multiple limitations that warrant emphasis. Dates of attendance for each session were not included in the data set, so the amount of time between sessions cannot be accounted for. The data were also collected with universities running their college counseling center treatment as usual. As a result, consistent administration of the CCAPS-62 was not enforced. For this reason, over 80% of CCAPS-62 administrations had to be dropped from analyses due to not having multiple data collection points. Also, it is not certain when in treatment the last administered CCAPS-62 was administered. As a result, the “pre-to-post” comparison could be session one to session two or session one to session six. The last recorded CCAPS-62 may also not have been at the termination of treatment. The time between CCAPS-62 administrations was also not factored into the analyses of this study. In the future, a controlled trial in which all participants are regularly administered a treatment outcome measure and the number of sessions and time between sessions is consistent would help regulate the comparison and improve the interpretability of these findings. College counseling centers, therapists/staff, clients, and researchers can benefit from regular administration of standardized treatment outcome measures to track progress, modify treatment accordingly, and give a more accurate picture of the change occurring and differences between populations. Research suggests that this type of routine treatment outcome monitoring is recommended as best practice and reduces deterioration as well as increases positive outcomes (Lambert et al., 2003).

It is important not to overstate the statistical differences between student-athletes and general population students on CCAPS-62 scores. For example, the range of subdomain intake score differences were .05 - .33 points. This means that the amount of difference is 1/3<sup>rd</sup> of a standard deviation at best and 1/20<sup>th</sup> of a standard deviation at its lowest, not reaching a level of

reliable change. It is possible that, for some of the subdomains, the statistical significance does not reflect a practical difference. Having statistically significant differences that translate to relatively low, raw numerical differences may be due to the large size of the sample.

Another potentially important element to keep in mind is that not all student athletes receive psychological services from their college counseling center. Other treatment settings include psychological services that are housed in the university's athletics department. Some teams, athletic departments, or individuals also contract services from professionals in the private sector. It would be interesting for future studies to investigate whether differences exist between the two groups when incorporating the outcome data from these other treatment settings.

The exploratory intent of this study was to discover whether or not differences existed between student-athletes and the general student population. One area in need of further investigation is continued evaluation of the percentage of counseling center clients that identify as student athletes. Similarly, an updated metric for the Watson (2006) study on the proportion of student athletes seeking services in comparison to student athletes would also be helpful to this body of literature and identifying whether differences in utilization still exist.

Future replication studies are also encouraged to broaden or narrow the population and verify results. Potential variations of this study for replication could include studying universities and colleges that are not included in CCMH, making sport-specific comparisons, making comparisons across divisions of the NCAA, or looking at outcome differences in a group therapy modality. Other variations of the study could include looking at overall well-being by using other measures of outcome, implementing qualitative interviews and methodology, or using more than two time points to track change.

Lastly, another natural next step would be to study the potential reasons for observed differences. Why do student-athletes enter treatment reporting lower self-rated levels of distress on all subdomains, and why are they reporting more change in certain subdomains? These would be interesting questions to investigate that would provide further insight and understanding of observed differences across groups.

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