

An Overview of Academic Stress on College Athletes

By

Naomi Lockamy

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Dr. Jennifer Brown.
Department of Health and Human Studies

And

Director of the University Honors Program

Abstract

Mental health is an important topic that has attracted more attention in recent years, especially in the athletic community due to the COVID-19 pandemic. Suicide cases have risen among student athletes, placing it as the fourth leading cause of deaths among college athletes. Athletes face an extreme level of stress because of sports, academics, and their day-to-day life. This study was designed to evaluate those stress levels in athletes and identify whether men or women faced more academic stress during the school year. There were 130 college athletes, ranging from 18 to 25 years of age (89 men; 40 women; 1 preferred not to say), who participated. Participants were recruited face to face or by social media. Participants completed a survey that included biographic questions, the WHO-5 Well-Being Index questionnaire, and the Perception Academic Stress Scale (PASS). Results showed that there was a weak correlation between academic stress and the well-being of college athletes. The men college athletes, however, reported a better well-being and less academic stress levels when compared to women college athletes. Overall, the perceptions of workload and exams caused the most academic stress within both genders.

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Chapter I: Introduction

Problem Statement

Mental health has moved to the forefront of discussion due to recent events in history (Walton et al., 2019). According to Flanick and Mittal (2020), it has been a concern for college students due to new adjustments and responsibilities. Student athletes have attracted more attention in recent years, especially during the COVID-19 pandemic. In fact, Strauss (2022) explains how the NCAA (National Collegiate Athletic Association) has recently reported an increase in suicides among student athletes, advancing it to be the fourth leading cause of deaths among college athletes. These athletes are under magnified pressure to perform well academically in addition to excelling on a consistent basis in their respective sport. Research has been done to address some of the lack of clarity in this area, (Lassiter et al., 2022; & Flanick et al., 2020); however, additional investigation is needed to compare gender differences in student athlete experience (Bedewy et al., 2015; Aihie et al., 2019). This research was done to determine if academic stress differs between men and women student-athletes and identify their needs to support student-athletes in the future. Note that all students face pressure and stress, but student-athletes experience additional stress by having elevated expectations placed on them to perform at a high-level in both sports and academics (Lopes Dos Santos et al., 2020).

Additional research needs to be done to clarify the impact of mental health concerns and academic pressure at the collegiate level in today's world climate. Mental health has become an emerging area of interest and student athletes should be embracing a new mental health focus. Some stressors are recurrent and expected in academic life (e.g., classes, homework, etc.), while midterms and exams are more situational and can be anticipated by coaches (Lopes Dos Santos et al., 2020). Prior research discusses how NCAA Division I football athletes at a Bowl Championship Subdivision university were more likely to become ill or injured during an

academically stressful period (i.e., midterms and final exams) than during a non-testing week (Marwat et al., 2021). Many factors have been linked to stress in college students such as age, gender, workload, and classification. It is important for coaches, professors, parents, and the student athletes to be able to identify these stressors and understand the vulnerability of the population to aid them in managing the effects of stress due to academics. This research examines the relationship between academic stress in college athletes and well-being, differences between men and women, and factor(s) that most influence academic stress levels.

Statement of Purpose

The purpose of this study was to analyze stress levels reported through the PASS survey. Subsequently, investigators purposed to identify any correlation to the score of the WHO-5 Well-Being Index. This study also aimed to discover any consistencies within academic pressure between men and women college athletes.

Significance of Study

The study's significance was to provide research used by coaches, administrators, professors, and athletic professionals to effectively support college athletes academically and reduce their stress levels.

Research Questions

1. To what level are college athletes academically stressed?
2. Are the stress levels between men and women college athletes the same?
3. Is the main factor for them being academically stressed due to pressures to perform, perceptions of workload and examinations, self-perceptions, or time restraints?

Limitations

Participants engaged in the survey voluntarily and were not supervised. While only fully completed surveys were analyzed, there is no way to determine internal limitations that may have been experienced by the participants relating to the understanding of the questions or their personal intent.

Delimitations

The study was restricted to participants between the ages of 18-25 years that were current students and had served as an athlete in any division for their university during the 2022-2023 academic year.

Abbreviations and Definitions

COVID-19: Coronavirus-19

ECSU: Elizabeth City State University

NAIA: National Association of Intercollegiate Athletics

NCAA: National College Athletic Association

NCCAA: National Christian College Athletic Association

NJCAA: National Junior College Athletic Association

PASS: Perception of Academic Stress Scale

WHO-5: World Health Organization- 5 Well Being Index

Chapter II: Review of Literature

When evaluating the health of an individual, it is common to look at physical diagnoses one experiences such as high blood pressure, diabetes, arthritis, or any other health condition. Mental health is also a key component of an individual's health and can impact them physically, positively or negatively. (Esler, 2017). According to the Center for Disease Control and Prevention, mental health includes the emotional, psychological, and well-being of an individual. These elements impact thought processes, actions, feelings, as well as influence decision making, and dictate how stress may be handled. Lu (2021) explains how stress was previously centered around the concept of biology, but it has shifted over the years to describe an individual's physiological, social, and psychological health.

Research was done introducing distress and eustress as the two distinct types of stress (Lu et al., 2021; Rudland et al., 2019). Distress is the type of stress that negatively impacts an individual and can impair normal physiological functions (Lu et al., 2021). Negative events such as the loss of a job or loved one can display anxiety, depression, and/or eating disorders. Literature also describes how eustress is the “good” stress and can have a positive effect on one's learning and health (Rudland et al., 2019). While academic distress has been linked to low academic success (Ali et al., 2020), literature is sparse providing support to the idea that distress leads to minimal learning while eustress leads to maximal learning. However, it does explain how eustress is more desirable (Rudland et al., 2019). In fact, a study done in Turkey showed that students who had a higher self-esteem reported lower test anxiety scores (Sari et al., 2017).

It is common for college athletes to experience both types of stress due to different events and situations that occur independently (Pluut et al., 2022). Thus, interest lies in exploring both aspects and identifying any cause-effect relationships between stress and an individual's

response. Distress has been discussed in prior literature regarding college athletes (Lopes Dos Santos et al., 2020; Strauss 2022) but few have collected data across multiple campuses with a HBCU being included. Previous research explains that Blacks of all ages are more likely to report increased psychological distress when compared to Whites (Parker, 2021). In the United States, it is not unusual to prescribe guilt and fear unto individuals for punishment of certain behaviors that have been normalized (Yakeley, 2018). However, directing shame in depression is more common in socio-centric countries such as North India (Yakeley, 2018). When analyzing mental disorders and their effects, diverse cultures and societies have differing opinions and feelings. While some societies impose fear for individuals communicating how they feel mentally, others inflict shame. The stigmatism and negative feelings were reduced when COVID-19 introduced itself in 2020 and they were replaced with grace (Son et al., 2020).

After the COVID-19 pandemic impacted the world heavily in March 2020, college athletes were placed under an increased magnification to evaluate their stress levels and mental health (Son et al., 2020). COVID-19 is a dangerous, acute respiratory illness that can spread from one person to another in close contact. As a response to the pandemic, a lot of institutions switched to virtual learning to refrain from spreading the infection more, but this increased the concern of an individual's mental health drastically (Uroh et al., 2021). Flanick and Mittal (2020) stated that academic performance of students was negatively impacted due to learning online and other factors COVID-19 introduced (Flanick et al., 2020). Students were left with higher anxiety and depression rates resulting in higher stress rates reported. A study disclosed that the main factors that impacted the change in responses of the student-athletes were GPA and hours spent preparing for exams (Lassiter et al., 2022). Researchers invited men and women student athletes to complete a survey during November of 2019 and then a second survey, which was identical to

the first, in November 2020. The results showed that women reported higher levels of stress compared to men when completing the survey during the first and second phase; however, the stress levels of men did increase during the second phase. While this study was completed at a small, private, Division 3 liberal arts institution, it provided information and research that had not been done on athletes previously (Lassiter et al., 2022).

Student-athletes face increased stress and pressure compared to traditional students due to the coach's pressure to win and any conflict they may face within their team (Brandão et al., 2021; Strauss, 2020). College athletes are expected to complete the same workload as traditional students despite physical fatigue they may endure (Jones, 2021). A study conducted at a private Division 1 university was designed to identify the sources of stress in student athletes compared to traditional students (Wilson et al., 2005). Although there is limited research discussing if student athletes experience more stress compared to typical students, the research performed by Wilson and Pritchard (2005) found that athletes reported higher number of sources that contribute to their stress levels when compared to nonathletes (Wilson et al., 2005). In areas pertaining to relationships and their personal life while typical students reported higher stress levels involving their social life. The Perception Academic Stress Scale (PASS) has been previously used, adjusted, rated at 0.7 for its consistency by a group of experts at Tanta University (Bedewy et al., 2015). A study was conducted including undergraduate students in Sri Lanka (Praveeni et al., 2020). This research used random sampling to select 497 participants and found that undergraduate students reported high levels of academic stress which was negatively related to academic performance. Another study using the PASS examined the academic stress levels based on gender (Aihie et al., 2019). The researchers also used purposive sampling to narrow down which Faculties (departments) they would obtain data from. Once three were

selected, simple random sampling was utilized to select 427 undergraduate students from those from Faculties in the University of Nigeria. While these studies have been successful in determining some academic stress relationships that college students may experience, they have not examined academic stress relationships as they relate student athletes and the complex relationships they experience with stress as it relates to gender, well-being, division level, sport played, course load, and classification.

Literature discloses that students of low-socioeconomic status, who are first generation college students, and of minority status face challenges that are not as common in other populations (Amizitia et al., 2018). In fact, prior research states that 60% of first-generation students in business school faced significant levels of psychological stress (Saleh et al., 2017). The Center for the Study of Athletics collected data revealing that education was not the primary reason for African American student athletes attending college (Hyatt, 2003). Simons (1999) presents that there are four motivational types: success oriented, overstrivers, failure-avoiders and failure-acceptors. Failure acceptors are reported to have a history of failing and are not confident in their ability to succeed academically. Failure acceptors may have, at one point, been failure avoiders, but due to the consistent academic failure they obtained a sense of helplessness leading them to not care about succeeding academically (Miller et al., 1979). While research is elusive on the topic, prior discussions suggest that student athletes classified as “failure acceptors” engage in attending college as an athlete (Simons et al., 1999), which might link to increased academic stressors. In a previous study, it was found that while both “academics and athletics” were 63.9% of the student-athletes' reasons for attending college or university, “mostly athletic” represented 26.8% (Yukhymenko-Lescroart, 2023). Research reports that student-athletes' energy levels are high and have low levels of stress before the season starts (Strauss,

2020). After the season; however, there was a drastic decrease in energy levels with high level stress in all athletes. Flanick (2020) completed a study that for college athletes to complete a physical test twice to identify whether they can perform at a high level physically during a week with little academic demand and during week with rigorous demand (Flanick et al., 2020). The data shows that there was a decrease in performance between the two different weeks for the bench press and squat for many of the athletes.

Prior research also shows that the students claim their course load has a major impact on their stress levels overall (Talib et al., 2012; Al-Shagawi et al., 2017). The students in these studies were intended to represent undergraduate students in college. Literature shows that individuals perform well despite insecurities in the workplace (Shin et al., 2020), but research supporting that college athletes performing well despite high stress levels involving academics is difficult to find. Shin et al., 2020 represents unique research by using online recruitment and the participants completed a survey using an electronic platform based in South Korea. Social media recruitment became an accepted form of recruitment worldwide due to its advantages in cost, speed, and efficiency (Sanchez et al., 2020). It has been an effective way to collect data, especially due to the COVID-19 pandemic offering many responses from the population. This form of research has been used in many studies (Kasson et al., 2021; Wilson et al., 2017; Salk et al., 2020), including collecting data on mental health. Studies have shown that social media recruitment has made connecting with the younger population more achievable (Kasson et al., 2021). When targeting specific populations, social media recruitment has shown to be helpful in receiving more responses from “hard to reach” or “stigmatized” populations (Russomanno et al., 2019). Despite its slight disadvantages such as uncompleted surveys, it still breeds data in a simple, quick, and effective manner.

Chapter III: Methodology

Research Design

This research was designed to ask participants questions from the Perception Academic Stress Scale (Lassiter et al., 2022; & Flanick et al., 2020) and the WHO-5 Well-being Index (Topp et al., 2015; Faruk et al., 2021) through Survey Monkey (Soccio, 2022; George et al., 2013). Individuals eligible to participate in this experiment were asked to complete an anonymous 33-question survey. Approval for the study was received by the Elizabeth City State University Institutional Review Board.

Subjects & Sample Population

The population for this research included individuals that were between the ages 18-25 ($M= 20.49$, $SD= 1.54$), currently enrolled as a student, and had served as an athlete in any division for their university or college during the 2022-2023 academic year. The objective of this study was to capture the difference in men and women athletes. Participants were recruited via face-to-face and social media (see appendix B) (Sanchez et al., 2020; Gelinis et al., 2017). By using mixed recruitment methods, it maximized the outreach for potential participants. No reward or compensation was provided to the participants.

Procedures

Potential participants were recruited, self-determined their eligibility, and then asked to read the informed consent (see appendix C). If they did not agree to the informed consent, then they were asked to stop the survey. For those who agreed, they were instructed to complete a survey that included a few biographic questions, the WHO-5 questionnaire, and the Perception Academic Stress Scale (PASS) (see appendix A). For the WHO-5 Well-Being Index, the original scores reported are converted to a score of 0 to 100, with the higher scores reflecting the best

imaginable well-being. PASS questionnaire is designed to evaluate the mean scores for specific questions which can be used to identify to what degree athletes are academically stressed. The factors within the scale that will be examined are pressures to perform, perceptions of workload, academic self-perception, and time restraints for this section of the survey, the higher the mean score translates to a low level of academic stress.

Statistical Analysis

Once the data was collected, it was reviewed and entered into a correlation coefficient calculator to determine correlations between the WHO-5 Well-Being Index and PASS scores. After a correlation was identified with a statistically significant p-value of less than 5%, two independent t-tests were performed to determine if gender influenced the college athlete's well-being and academic stress levels.

Chapter IV: Results

For this research, 133 responses (91 men, 41 women, and 1 preferred not to specify) were collected from individuals that were recruited. After reviewing the data, two individuals skipped the informed consent, and one did not meet the requirements. As a result, only 130 responses (89 men, 40 women, and 1 preferred not to specify) were analyzed and reviewed. There were eight different races represented in this study, the largest representation being Black or African-American or White (see Table 1). Table 2 displays the 6 different divisions that were also represented within this study including one athlete being from the National Christian College Athletic Association (NCCAA). Most of the participants were from the NCAA Division 2 level (121 out of 130). While there are many sports within different divisions and collegiate associations, only 10 were shown within this study. The survey used consisted of 33 questions referring to the participants' biographic background, well-being, and perception of academic stress. Based on the results, it will help identify whether athlete's perception of academic stress has any correlation to their well-being. Among all college athletes, the WHO-5 Well Being Index and PASS scores had a weak positive correlation, $r(128) = .33, p < .05$ which is statistically significant and thus was further explored by performing two independent t-tests to discover if gender differences were present. The results for each questionnaire will be discussed in the respective following paragraphs.

The WHO-5 Well Being Index (see appendix A) is scored on a 6-point Likert Scale, ranging from 0 (at no time) to 5 (all the time). The original scores reported are converted to a score of 0 to 100, with the higher scores reflecting the best imaginable well-being. Based on the results reported, the mean score for the 130 participants is 55.54 and a standard deviation of 20.89. Fifty-six of the participants (31 women, 24 men, and 1 prefer not to say) reported a WHO-

5 score below or equal to 50, which symbolizes a poor well-being and with possible symptoms of depression. This translates to 77.5% of women and 27.0% of men reporting a poor well-being. While there was a gap in the gender population, there is still a 50% difference in the percentages of reported well-beings between genders. Fifteen of the fifty-six participants (26.8%) were at a score of 28 or below indicating depression. 27% (11 out of 40) of the women athletes expressed that they were at a score of 28 or below indicating depression while only 4% (4 out of 89) of men athletes reported the same findings. The 89 men who completed the WHO-5 ($M=61.39$, $SD=19.81$) demonstrated a significantly better well-being when compared to the 40 women who participated ($M=42.8$, $SD=17.31$), $t(129)= 5.12$, $p< .05$. When looking more closely at the results reported from each question in the WHO-5, 63.85% of the participants reported feeling fresh and rested less than half of the time, some of the time, or at no time.

The PASS is an 18-item survey that is scored on a 5-point Likert scale. When looking at this questionnaire, it is an evaluation of the mean scores for specific questions which can be used to identify to what degree athletes are academically stressed. The lower the score means the more severe the type of stress. Overall, the participants responded positively depicting less stress with the first three questions on the PASS having a mean score of 3.75 or above (see appendix A). An evaluation of the mean scores for specific questions can be used to identify to what degree athletes are academically stressed. The fourth question illustrates a mean score of 3.17 which signifies moderate stress levels. The most concerning of the positive response questions was fifth because it has a mean score of 2.62. This means that athletes feel like they do not receive enough time to relax after practice or work. The 89 men who completed the PASS ($M=3.25$, $SD=0.54$) also demonstrated a significantly lower level of academic stress when compared to the 40 women who participated ($M=2.90$, $SD=0.51$), $t(129)= -3.42$, $p< .05$.

One of the research questions was to identify which factor had the greatest impact on the student-athletes academic stress. Recognizing that some questions from the PASS may be considered for several factors is a critical component of analyzing the data. When looking at the factor of “perception of workload and examinations,” it is evident that this is one of the major causes of stress with a mean score of 2.77. The factors due to “pressures to perform,” “self-perceptions,” and “time constraints” reported a mean score of 3.08, 3.29, and 3.08 respectively exemplifying moderate stress levels. While the factor of pressures to perform had a mean score of 3.08 indicating moderate stress levels, college athletes responded negatively to questions 6 and 17 resulting in a low mean score of 2.5 (see Appendix A). When identifying if load differences between genders to determine if that could be another significant factor influencing the academic stress levels and well-being of college athletes, the 89 men who reported their courseload ($M=14.06$, $SD= 9.213$) did not show a significant difference when compared to the 40 women who reported their courseload ($M=14.78$, $SD= 3.72$), $t(129)= 1.98$, $p > .05$.

Chapter V: Discussion

Analysis

This study provided a unique insight on the well-being and academic stress levels of college athletes. Based on the findings from this study, college athletes are moderately stressed academically with a mean PASS score of 3.14 and standard deviation of 0.56. This answers the first research question and was found by taking the mean score of all the 130 participants. There have been a few studies examining academic stress levels, and all of them have found a moderate stress level overall. Some of the studies were designed for traditional students, while others, like this study, were designed specifically for college athletes.

The next research question was to identify if gender had any influence on stress levels. A significant difference in the levels of academic stress was found within this study by women reporting higher levels of stress and a lower well-being compared to men. This was found by completing a two independent t-test and comparing the mean scores of the women and men from the WHO-5 Well-Being Index and the PASS, respectively. The purpose of this was to identify if gender contributed to the results retrieved so in the future, professionals in athletics and the athletes will be aware of the statistics behind academic stress and well-being. This will also promote support methods and techniques for the “high-risk” population as it pertains to the well-being and stress levels of college athletes. There is previous research that is consistent with these findings (Lassiter et al., 2022) while another research study performed at the University of Egypt involving students that were typical students in their third year of studying does not align with these (Bedewy et al., 2015). The research that matches the findings in the research however, included a more closely related institution and demographics to the one is within this thesis. More research should be done to thoroughly analyze these differences within different populations and identify why there is a difference.

The last research question was to determine what factor within the PASS had the most negative impact on the overall reported stress levels. It was found that the factor “perceptions of workload and examinations” causes the most academic stress which is compatible with previous research done (Bedewy et al., 2015). These results were found by evaluating the mean scores for all college athletes for each factor. By identifying the factor that caused the most stress academically to the participants, it will assist athletic professionals and the professors to support the college athletes effectively.

Although the data was collected over a short-time period, over 100 responses were still received. The participants were mostly minorities within the African American population which has never been a focus or discussed in prior research as it relates to academic stress in college athletes. While there may have been a lack of participants that were seniors or graduate level students, the participants accounted for every classification. This research was also hosted at a small Historically Black College or University (HBCU) in northeastern NC which has never been done before when assessing stress. The student population of ECSU houses a majority of Black or African American students making up 67.3%. Whites follow making up 18.3%, this study will still provide a new outlook due to the diverse and under investigated population when discussing academic stress and well-being. Although research was hosted at ECSU, data was collected across multiple campuses and divisions. This provides a different point of view and addresses the lack of representation from prior research. It will also help advance knowledge about the correlation between academic stress and well-being within different races and areas of the United States.

Recommendations

Our study has many wonderful things to offer, but also several potential adjustments that could be made for future studies. The goal was to get a balance in participants that were men and women to effectively identify if there was a difference in the results between the two genders. Due to a large number of men that participated in the study, 68% of the participants, the data will not be as accurate when looking at the differences between them.

Another consideration is the variety of sports represented in this study. Survey Monkey facilitated bringing in more results from different colleges and universities around the country; however, this study included mostly football and women's basketball players making up 63.84% and 21.53% of the data, respectively. This could also skew the data with football occurring during the fall semester, potentially resulting in stress levels not being as high because they were off-season. This translates to athlete's issues relating to how many hours student athletes dedicated to their respective sport as athletes as fall athletes versus spring athletes. Considering this in how future studies are conducted may be beneficial in future research. Overall, there was a respectable number of undergraduate responses from athletes; however, future studies should look towards investigating graduate student-athletes further to examine their academic stress and well-being.

While the WHO-5 and PASS are validated surveys and have been used in prior research, it is important to note that the well-being and levels of stress in student athletes could be impacted by other factors besides academics. As college students, financial issues, socio-economic factors, identity issues, and other impactful struggles could influence their stress levels and these items were not tracked in this study. It is important to get the proper rest each night as an athlete to not only perform well in the classroom, but also during practice in their specific

sport. Without proper rest, it could result in injury or other physical complications that could be avoided (Lopes Dos Santos et al., 2020). Prior research introduced that self-esteem levels can impact test anxiety (Sari et al., 2017). Low self-esteem scores have been linked to higher test anxiety in individuals. The manner in which an individual views themselves could potentially play a role in how well they perform academically. Overall, students that have a powerful sense of self-worth and commitment to succeeding may have lower academic stress levels because they are less concerned about failing. On the contrary, students that experience low self-esteem will have elevated academic stress levels because they are captivated by success and fear failing (Sari et al., 2017). Further research should be done to identify if motivation types influence academic stress levels.

Aside from the mental health factors that could impact scores, course load may also be an impacting factor of consideration. An athlete may be more likely to be academically stressed if they are taking 19 credits compared to an athlete taking 12 credits. While there was no significant difference in levels of course load between genders, our cohort was small, and consideration should be given to this when looking at research development in the future. For women, 77.5% (31 out of 40) were considered juniors, seniors, or graduate level students compared to 44.9% (40 out of 89) men. Although the load of courses failed to have a relationship with academic stress levels, the classification of these student athletes should be explored further when evaluating the academic stress levels within the student athlete community.

Limitations

This data collection occurred over a brief time, not allowing for as much time for responses from different sports, divisions, and genders. It was also obtained during the last few weeks of school which could have impacted the responses of the student-athlete's responses

because of possible burn-out or any other reasons. There were fewer women that participated in this study and 68.3% percent of the women responses were from women basketball players. Out of the 91 men that participated in the study, 91.2% percent of them were football players. Future studies should look to gathering more diverse data, from additional sports, thus gathering a more well-rounded data set to draw conclusions and inferences from.

Conclusion

This study brought findings to the scientific community that should be considered. Relationships were found between academic stress and gender of college athletes. Correlations were also found between the well-being of the athlete and their academic stress levels, but this should be further explored in future study involving a well-rounded population. Overall, the perceptions of workload and examinations caused the most academic stress within both genders. Throughout each academic year, athletic professionals should verify that coaches are ensuring that the college athletes have time throughout the week for themselves to relax and receive support within the classroom. By acknowledging these findings and making necessary changes, this will help in positively changing the environment of athletics.

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Appendix A

Category	Survey Questions
Biographic Questions	<ol style="list-style-type: none"> 1. What is your age? 2. What is your gender? 3. Are you White, Black, or African-American, American-Indian or Alaskan Native, Asian, Native Hawaiian, or other Pacific Islander, or any other race? 4. What level do you play collegiate level sports? 5. What is your classification according to credits? 6. What is your current cumulative(overall) GPA? 7. How many credits are you currently taking? 8. What sport do you play currently at the collegiate level? 9. What type of sport do you play?
<p>WHO-5 Well Being Index 5- All the time to 0- At no time Scoring principle: The raw score ranging from 0-25 is multiplied by 4 to give the final score. 0 representing the worst imaginable well-being and 100 representing the best imaginable well-being.</p>	<ol style="list-style-type: none"> 1. I have felt cheerful and in good spirits. 2. I have felt calm and relaxed. 3. I have felt active and vigorous. 4. I woke up feeling fresh and rested. 5. My daily life has been filled with things that interest me.
<p>PASS For questions 1-5, 1= Strongly Disagree to 5= Strongly Agree</p> <p>For questions 6-18, 1= Strongly Agree to 5= Strongly Disagree</p>	<ol style="list-style-type: none"> 1. I am confident that I will be a successful student. 2. I am confident that I will be successful in my future career. 3. I can make academic decisions easily 4. The time allocated to classes and academic work is enough 5. I have enough time to relax after work. 6. My teachers are critical of my academic performance 7. I fear failing courses this year 8. I think that my worry about examinations weakens my character 9. Teachers have unrealistic expectations of me 10. The size of curriculum(workload) is excessive

	<ul style="list-style-type: none">11. I believe that the amount of work assignment is too much12. I am unable to catch up on behind work13. The unrealistic expectations of my parents stresses me out14. Competition with my peers for grades is quite intense15. The examination questions are usually difficult16. Examination time is short to complete the answers17. Examination times are very stressful to me18. Even if I pass exams, I am worried about getting a job
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Appendix B

Social Media Recruitment:

“You are being asked to participate in a research study. Participation in this study is completely voluntary. The purpose of this research study is to evaluate the effects of academic stress on student athletes. Individuals are eligible to participate in this study if they are ages 18-25, are current students, and have served as an athlete for their university this 22-23 academic year.”

Appendix C

Informed Consent:

You are being asked to participate in a research study. Participation in this study is completely voluntary. The purpose of this research study is to evaluate the effects of academic stress on student athletes. Individuals are eligible to participate in this study if they are ages 18-25, are current students, and have served as an athlete for their university this 22-23 academic year. Individuals are not eligible to participate in this study if they are a minor or if they have not served as a player on a collegiate level sports team for the 22-23 academic year. This study will include approximately 625 subjects and will take approximately 10 minutes for each subject to complete. Individuals may choose to give informed consent and participate by clicking on the link and participating in the survey anonymously, or may delete the email/link. If you choose to participate, it would really help if you could answer all questions. You will not be compensated for participating, but we appreciate you helping increase knowledge by sharing your personal perspective. Your time is appreciated and your contributions will help further the understanding of the effects of academic stress on college athletes. If you have questions you wish to ask before proceeding, please contact the student researcher: Naomi Lockamy by email at njlockamy577@students.ecsu.edu or the faculty sponsor: Dr. Jennifer Brown by email at jjbrown@ecsu.edu. If you do not have any questions and wish to proceed, you must be between the ages of 18-25 to participate, able to fill this out on your own, and must be a player on a collegiate level sports team for the 22-23 academic year. By clicking yes, you are saying that you agree to that you meet these qualifications and wish to participate.

Tables and Results

Table 1

Race/Ethnicity

Race/ Ethnicity	Men		Women		Preferred not to say		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq	%
White	4	40.00%	6	60.00%	0	0%	10	6.70%
Black or African-American	88	75.2%	34	29.10%	1	0.85%	117	78.52%
American Indian or Alaskan Native	2	100.00%	0	0%	0	0%	2	1.34%
Asian	2	100.00%	0	0%	0	0%	2	1.34%
Native Hawaiian or other Pacific Islander	1	100.00%	0	0%	0	0%	1	0.67%
Hispanic or Latino	4	100.00%	0	0%	0	0%	4	2.68%
Multiracial or Multiethnic	2	33.33%	4	66.67%	0	0%	6	4.03%
Other	1	100.00%	0	0%	0	0%	1	0.67%
Total	104	69.80%	44	29.53%	1	0%	149	

Note. The percentages are slightly rounded and will sum up to equal more than 100%. The top percentage is for the while the bottom percentage represents the respective column. Also, 2 women participants and 10 men participants reported two or more races/ethnicities resulting in the data adding up to more than 130 responses total.

Table 2*Division by Gender*

	NCAA Division 1		NCAA Division 2			NCAA Division 3		NJCAA		Do not Know		Other		Total
	M	F	M	F	PNTS	M	F	M	F	M	F	M	F	
Cross Country	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Football	0	0	83	0	0	0	0	0	0	0	0	0	0	83
Volleyball	0	0	0	3	0	0	0	0	0	0	0	0	0	3
Basketball	0	1	3	21	0	1	4	1	0	0	0	0	1	32
Bowling	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Baseball	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Softball	0	0	0	5	0	0	0	0	0	0	0	0	0	5
Tennis	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Other	0	0	0	3	0	0	0	0	0	0	1	0	0	3
Total	0	1	87	33	1	1	4	1	0	0	1	0	1	
	1		121			5		1		1		1		130

Note. M represents Men, F represents Women, PNTS represents preferred not to say.

Table 3*Classification by Gender*

Classification	Men		Women		Preferred not to say		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Freshman	29	93.55%	2	6.45%	0	0%	31	23.85%
		32.58%		5.00%				
Sophomore	21	72.41%	7	24.14%	1	.77%	29	22.31%
		23.60%		17.5%		100.00%		
Junior	29	65.91%	15	34.10%	0	0%	44	33.85%
		32.58		37.5%				
Senior	8	36.36%	14	63.64%	0	0%	22	16.92%
		9.00%		35.00%				
Graduate Level	2	50.00%	2	50.00%	0	0%	4	3.08%
		2.25%		5.00%				
Total	89	68.46%	40	30.77%	1	.77%	130	100%

Note. The percentages are slightly rounded and will sum up to equal more than 100%. The top percentage is for the while the bottom percentage represents the respective column.

Table 4*Credits by Gender*

Credits	Men		Women		Preferred not to say		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq	%
Below 6	3	100.00%	0	0%	0	0%	3	2.31%
6	1	100.00%	0	0%	0	0%	1	0.77%
10	2	100.00%	0	0%	0	0%	2	1.54%
11	1	100.00%	0	0%	0	0%	1	0.77%
12	20	71.43%	8	28.57%	0	0%	28	21.54%
13	3	50.00%	2	33.33%	1	16.67%	6	4.62%
14	2	40.00%	3	60.00%	0	0%	5	3.85%
15	33	63.46%	19	36.54%	0	0%	52	40.00%
16	10	66.67%	5	33.33%	0	0%	15	11.54%
17	4	66.67%	2	33.33%	0	0%	6	4.62%
18	6	66.67%	3	33.33%	0	0%	9	6.92%
20	0	0%	1	100.00%	0	0%	1	.77%
21	0	0%	1	100.00%	0	0%	1	.77%
Total	89	68.46%	40	30.77%	1	.77%	130	

Note. The percentages are slightly rounded and will sum up to equal more than 100%. The top percentage is for the while the bottom percentage represents the respective column.

Table 5
WHO-5 by Gender

WHO-5	Men	Women	Prefer not to say	Mean
	Raw	Raw	Raw	Raw
Question 1	3.17	2.38	2	2.52
Question 2	3.02	2.1	2	2.37
Question 3	3.54	2.58	2	2.71
Question 4	2.49	1.33	2	1.94
Question 5	3.13	2.4	3	2.84
Mean	3.07	2.17	2.2	2.48

Note. The raw score above shows the means reported on a 6-point Likert scale. The lower the score, the worse the well-being of the individual. The real score is ranked from 0 to 100.

Table 6
PASS by Gender

PASS	Men	Women	Prefer not to say	Mean
Question 5	2.82	2.18	3	2.67
Question 6	2.55	2.45	3	2.67
Question 10	2.79	2.66	3	2.82
Question 11	2.80	2.65	3	2.82
Question 16	2.97	2.48	3	2.82
Question 17	2.84	1.90	3	2.58
Question 18	3.08	2.23	2	2.43
Mean	2.84	2.36	2.86	2.69

Note. This table represents the mean scores for the lowest reported mean questions within the PASS. Each question's mean score was separated by gender to identify any differences in academic stress.

Correlation Results

Result Details & Calculation

X Values

$$\Sigma = 7220$$

$$\text{Mean} = 55.538$$

$$\Sigma(X - M_x)^2 = SS_x = 55892.308$$

Y Values

$$\Sigma = 408.582$$

$$\text{Mean} = 3.143$$

$$\Sigma(Y - M_y)^2 = SS_y = 39.93$$

X and Y Combined

$$N = 130$$

$$\Sigma(X - M_x)(Y - M_y) = 486.145$$

R Calculation

$$r = \Sigma((X - M_x)(Y - M_y)) / \sqrt{((SS_x)(SS_y))}$$

$$r = 486.145 / \sqrt{((55892.308)(39.93))} = 0.3254$$

Meta Numerics (cross-check)

$$r = 0.3254$$

WHO-5 Independent *t*-test for Gender

Difference Scores Calculations

Treatment 1

$$N_1: 89$$

$$df_1 = N - 1 = 89 - 1 = 88$$

$$M_1: 61.39$$

$$SS_1: 34531.24$$

$$s^2_1 = SS_1 / (N - 1) = 34531.24 / (89 - 1) = 392.4$$

Treatment 2

$$N_2: 34$$

$$df_2 = N - 1 = 34 - 1 = 33$$

$$M_2: 40.94$$

$$SS_2: 8065.88$$

$$s^2_2 = SS_2 / (N - 1) = 8065.88 / (34 - 1) = 244.42$$

T-value Calculation

$$s^2_p = ((df_1 / (df_1 + df_2)) * s^2_1) + ((df_2 / (df_1 + df_2)) * s^2_2) \\ = ((88 / 121) * 392.4) + ((33 / 121) * 244.42) \\ = 352.04$$

$$s^2_{M_1} = s^2_p / N_1 = 352.04 / 89 = 3.96$$

$$s^2_{M_2} = s^2_p / N_2 = 352.04 / 34 = 10.35$$

$$t = (M_1 - M_2) / \sqrt{(s^2_{M_1} + s^2_{M_2})} = 20.45 / \sqrt{14.31} = 5.41$$

PASS Independent t-test for Gender

Difference Scores Calculations

Treatment 1

N_1 : 41

$df_1 = N - 1 = 41 - 1 = 40$

M_1 : 2.9

SS_1 : 10.29

$s^2_1 = SS_1 / (N - 1) = 10.29 / (41 - 1) = 0.26$

Treatment 2

N_2 : 89

$df_2 = N - 1 = 89 - 1 = 88$

M_2 : 3.25

SS_2 : 26.23

$s^2_2 = SS_2 / (N - 1) = 26.23 / (89 - 1) = 0.3$

T-value Calculation

$s^2_p = ((df_1 / (df_1 + df_2)) * s^2_1) + ((df_2 / (df_1 + df_2)) * s^2_2)$
 $= ((40 / 128) * 0.26) + ((88 / 128) * 0.3) = 0.29$

$s^2_{M_1} = s^2_p / N_1 = 0.29 / 41 = 0.01$

$s^2_{M_2} = s^2_p / N_2 = 0.29 / 89 = 0$

$t = (M_1 - M_2) / \sqrt{(s^2_{M_1} + s^2_{M_2})} = -0.35 / \sqrt{0.01} = -3.47$