

## Introduction

In recent times, higher education institutions have witnessed a significant number of students with mental health problems. This rise in the number of students enrolling in college with pre-existing mental health conditions has challenged college campuses on how to effectively support their students (Lipson et al., 2019). Research studies further reveal that an estimated “one in three students meets the criteria for a clinically significant mental health problem.” (Lipson et al., 2019, p.60). In another study, Drum et al.(2009) revealed that about 17% of undergraduate and 22% of graduate students were taking medication for mental health concerns at some point in their lives. Similarly, a study conducted at 26 universities found that 17% of students had depression while 10% experienced different types of anxiety disorders (Hunt & Eisenberg, 2010). If the issue of mental health challenges and problems is left unaddressed, college students' mental health conditions can fuel a rise in suicides and diminish well-being that ultimately affects academic performance and their quality of life (Jones, 2019). The limited data about the relationship between a college student's mental health and physical exercise contributes to the lack of awareness about the severity of the issue amongst the community.

Therefore, to better investigate the issue of mental health among college students, the researcher focused specifically on the impact that exercising has on the mental health of college students. In a study conducted by Grasdalsmoen et al. (2020), the researchers reported that exercise releases a hormone called endorphins which can help elevate an individual's mood and cause them to be in a state of happiness or otherwise known as euphoria. These neurological signals sent to the brain after exercise are similar to those in antidepressants thus revealing some connection between exercise and mental health. According to Zivin et al. (2009), “while the majority of students with probable disorders are aware of the need for treatment, most of these students do not receive treatment, even over a two-year period” (p.180). Based on the overall objective of the study, the researcher then formulated two hypotheses;

1. Null Hypothesis (H<sub>0</sub>): Exercising will not have any impact on the mental health of a college student.
2. Alternative Hypothesis (H<sub>a</sub>): Exercise will have an impact on the mental health of a college student.

The study also aimed to answer the following research questions:

- 1) How does the mental health condition of college students impact their academic performance?
- 2) What are the most common mental health issues facing college students?
- 3) What other factors can be linked with mental health issues?

- 4) What coping measures can help college students facing mental health issues?

## **Literature Review**

The following paragraphs discuss the themes revolving around the mental health issues prevalent in the college community and how exercise has been studied as a solution to this problem. The paragraphs focus on four themes namely; the prevalence of mental health issues, exercise & mental health, mental health & college support services, and gender comparison, mental health & the impact of exercising. They also discuss how each gender gets impacted by specific mental health issues, as well as the need for services.

### *Prevalence of Mental Health Issues*

Many studies have supported the claim that mental health issues are prevalent among the college community. More specifically, anxiety and depression have been the most common issue that college students are facing. For example, Hunt & Eisenberg (2010) conducted a random survey sample of 26 colleges and universities. The survey results state that seventeen percent (17%) of students tested positive for depression, and ten percent (10%) of students screened positive for anxiety disorders. Another study states, “the current study found that, in terms of anxiety, 60% of students showed elevated levels which do confirm previous findings” (Tyson et al., 2010, p. 497). These two studies show the high prevalence of anxiety in the college community. However, Tyson et al.(2010) stated that depression was less prevalent since only ten percent (10%) of students showed increased levels of it. This viewpoint contradicted what was stated by Hunt & Eisenberg (2010). Even though these two studies differed in their views on depression, they both agreed that these mental health issues exist within the college community and that actions must be taken to prevent the conditions from worsening.

### *Exercise & Mental health*

Many researchers throughout the years have studied the relationship between mental health issues and exercise. For example, Vankim & Nelson (2013), conducted a study in which perceived stress and mental health issues were assessed in relation to exercise. The results revealed that college students who exercised more vigorously and reached the exercise recommendations were less likely to experience symptoms of mental health issues and perceived stress than

students who did not exercise as much (Vankim & Nelson, 2013). These findings were similar to the study results conducted by Grasdalsmoen et al. (2020). In their study, the researchers explored the correlation between mental health problems, suicide attempts, and physical exercise among college students. The findings showed that “physical exercise was negatively associated with all measures of mental health problems and suicidality in a dose-response manner.” (Grasdalsmoen et al., 2020, p.6). This means that with more exercise, the less likely it was for a student to experience symptoms of anxiety and depression. Both these studies demonstrated the importance of exercise within the college community. Another study that was conducted by Tyson et al.(2010), presented data that was consistent with the studies performed by Grasdalsmoen et al.(2020) and Vankim & Nelson (2013). The study by Tyson et al.(2010) found that students who had high levels of exercise had low levels of depression and anxiety symptoms. In another study by Bhoohibhoya et al.(2014), it was found that students who exercised more intensely, reported better mental health than students who performed lower intensity exercises. These high-intensity exercises are the ones that resulted in heavy sweating and breathing. All four (4) studies are related and in agreement that exercise can positively impact a student’s mental health.

### *Mental Health & College Support Services*

Several studies have shown the need for treatment of mental health problems within the college community. A study stated that 60% of students who had a mental health problem still had a mental health problem two years later (Zivin et al., 2009). The researchers concluded that “both the chronic nature of some mental disorders as well as persistent need for and use of services suggest that campus services need to be available for students with ongoing needs”(p.184). Similarly, another study conducted by De Luca et al.(2016) concluded that mental health services within the college campus need to be improved and more readily available. These resources would not only improve the mental health of college students, but they could also be helpful for their academic performance. Both studies agree on the need for college campuses to have more counseling services and other support services to help students with mental health issues.

### *Gender Comparison, Mental Health & Impact of Exercising*

Many studies have compared men and women when studying mental problems such as depression. For example, a study conducted by Edman et al.(2014) wanted to find the correlation between exercise, depression, and exercise

dissatisfaction. This study compared the results among males and females. In this study, it was reported that women had higher levels of depression and exercise dissatisfaction than men. They also stated that exercise positively impacted the depressive symptoms for men but there was no association between depression and exercise for women (Edman et al., 2014). However, Taliaferro et al. (2009) found that both men and women who were actively exercising had reduced depression, suicidal behavior, and hopelessness than those who were inactive. Both studies agree that the depressive symptoms of men were positively impacted by exercise. However, both have differing views on how exercise impacts the symptoms of depression among women.

## **Methodology**

### ***Study Design & Data Collection***

This study was conducted using a quantitative approach. Specifically, an online survey was conducted among 40 randomly selected college students from Kean University located in NJ. Information was collected primarily through an online questionnaire, which was sent to participants via email. The advantage of this format is that it is accessible and efficient. The questionnaire was constructed using google forms and consisted of 15 closed-ended questions for participants to answer.

### ***Procedures/Protocol***

To participate in this study, students were emailed a link to the google forms questionnaire. When the participants opened the link, they were given an informed consent stating whether or not they agree to participate in this study. This informed consent described the study that they would be participating in. It also discussed this study's purpose and explained to the college students how their answers will be used and analyzed.

### ***Data Analysis***

The data from the study was analyzed by the google survey instrument and results were reported in aggregate form as displayed below.

## **Results**

Below are the results of the survey that was conducted. Each figure has been labeled and corresponds to the questions asked in the survey.

Figure 1: How Long the Participants Exercise

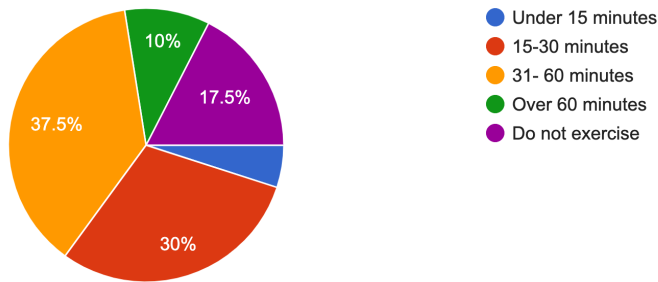


Figure 2: How Intense the Participants Exercise



Figure 3: Mental Health Symptoms Reported by the Participants

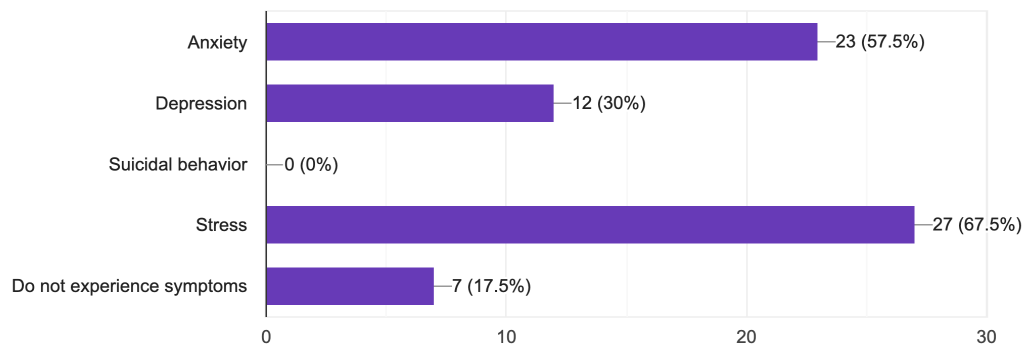


Figure 4: Participants had to report if they felt that exercising consistently was good for their mental health

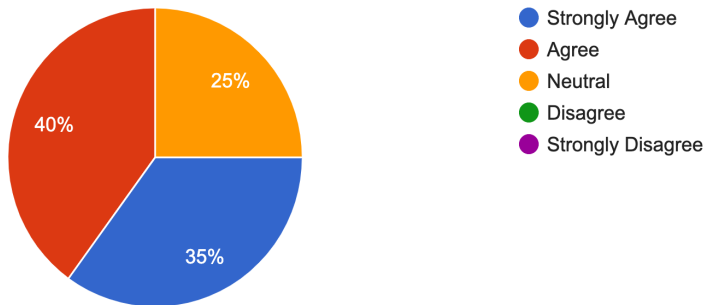


Figure 5: Participants reported what they felt happened to their mental health symptoms after exercising

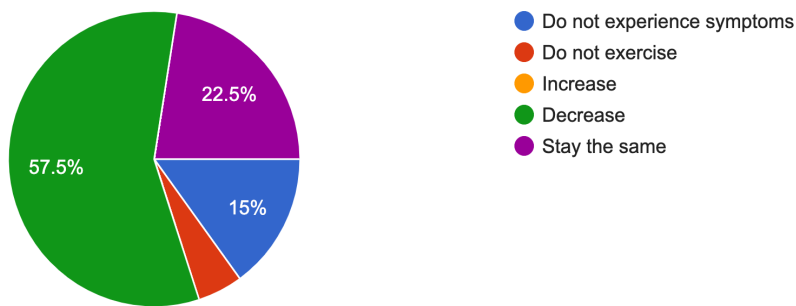
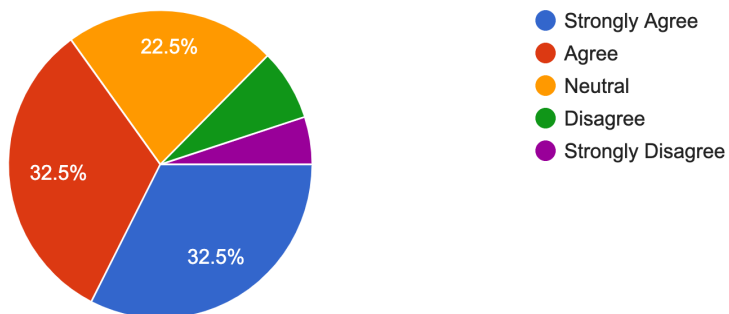


Figure 6: Participants reported if they felt that their mental health symptoms impact their academic performance



## Discussion

The main objective of this study was to find the impact exercise has on the mental health of college students. The researcher wanted to fully understand the extent and benefits of exercise on a student's mental health. According to Figure 5 (above), 23 participants stated that after exercising their mental health symptoms decrease. No participant reported an increase, and only 9 participants stated that their symptoms stayed the same. There were a few participants who either did not experience symptoms or did not exercise. In Figure 2 (above), 52.5% of the responses were reported vigorously, while 37.5% were reported moderately. Only 10% of responses were reported lightly. It was found that those who reported a decrease in their mental health symptoms were more likely to have exercised vigorously. This finding was consistent with several past studies. For example, a study by Vankim & Nelson (2013) found that students who exercised vigorously were less likely to experience mental health symptoms. The studies conducted by (Grasdalsmoen et al., 2020; Bhochhibhoya et al., 2014; Tyson et al., 2010) were consistent with the findings of Vankim & Nelson (2013).

Figure 1 (above), shows that 15 participants exercised from 31-60 minutes. Only 10% of participants stated that they exercise over 60 minutes and 30% stated that they exercise from 15-30 minutes. It was also found that those who exercised vigorously were more likely to have exercised from 31-60 minutes. For Figure 4 (above), 35% of students strongly agree that exercising more consistently was better for their mental health. Forty percent (40%) of the students stated that they agree and 20% of participants stated neutral. In Figure 3 (above), participants were asked to report all mental health symptoms that they experience. The most common symptom that was reported was stress with 27 responses. The second most common symptom was anxiety with 23 responses and then depression with 12 responses. The finding shows the need for mental health services as supported by the studies of (Zivin et al., 2009 and De Luca et al., 2016) although contradictory to what Hunt & Eisenberg (2010) report. In Hunt & Eisenberg's (2010) study, they reported that depression was more common among students than anxiety. However, in this study, it was the opposite. Therefore, this finding correlated with the 2010 study of Tyson et al. when discussing the prevalence of anxiety and depression. In the study by Tyson et al. (2010), it was stated that there were higher levels of anxiety among students than depression. In this study, no student reported that they experience suicidal behavior. Also, several students reported that they do not experience any symptoms.

When asked if they feel that their mental health symptoms impact their academic performance, Figure 6 (above), 32.5% of the responses stated agree and 32.5% stated that strongly agree. This result then implies that improved mental

health status correlated positively to improved academic performance. This finding was similar to what was presented in the study of De Luca et al. (2016). In their study, they found that improving the mental health of college students may have a positive impact on their academic performance. However, 22.5% of responses were reported as neutral, 5% strongly disagree, and 7.5% reported disagree. As shown in Figure 7 (see appendix I), there were more female participants than male participants. Both genders experienced depression, anxiety, and stress, as well as stated that their mental health symptoms decreased with exercise. This was the same as the findings in the study of Taliaferro et al.(2009). They found that the mental health of both men and women was positively impacted by exercise. Most of the participants were at the sophomore level, Figure 8 (below), and were between the ages of 18-22, Figure 9 (see appendix I). Figures 13 and 14 (see appendix I) wanted to show the direct relationship mental health problems have on a student's work rather than overall academic performance. In Figure 13, 30% of participants strongly agree that they can focus more on their schoolwork when they experience fewer symptoms, while 42.5% agree. According to Figure 14, 40% of participants strongly agree that their test scores get negatively impacted by their mental health symptoms. These two figures show that participants feel that their mental health symptoms negatively impact their academic performance. For Figure 11 (see appendix I), students were asked to report how often they exercise. Thirty-five percent (35%) of participants exercised 1-2 times per week while 30% of participants reported that they rarely exercise. In Figure 12 (see appendix I), 15 participants reported that they experience their mental health symptoms 1-2 times per week. Eleven (11) participants reported that they experience their symptoms daily. It was found that those who rarely exercised or did not exercise at all were more likely to experience their mental health symptoms more often.

Figure 10 (see appendix I) shows the varying GPA levels of the participants. Forty percent (40%) of participants reported their GPA to be between 2.9-3.4 and 30% of participants reported their GPA to be between 3.5-3.9. Fifteen percent (15%) of participants had a 4.0 GPA, while 5 participants had between 2.5-2.8. Only one (1) participant had a GPA between 1.5-2.4. Participants of all GPA levels experienced different mental health symptoms. From the results of this study, mental health symptoms could not be used to predict GPA. This is mostly because a student may not experience symptoms and have a low GPA, while another student can experience several symptoms and have a high GPA.



## **Limitations of the Study**

The study identified three (3) notable limitations as part of the study. These include the small sample size, time constraints, and choice of research design. First, the number of participants was less than the amount anticipated. For example, it was anticipated that about 50-150 college students currently attending Kean University would participate in this study. However, only 40 students participated. This number was less than the minimum threshold that the researcher set, nevertheless, it was a large enough number considering the study design. Secondly, the limited time duration in collecting data also challenged the study. The survey was sent out two weeks before the semester ended. Towards the end of the semester, students were less likely to get involved. This can be due to several things like studying for finals or anticipating the holiday break. Lastly, the research design chosen for the study did limit the scope of the research findings. Although a quantitative method is very useful in providing statistical data and much easier analysis, a mixed-method could have been better. For example, if the researcher would have included two or three interviews then this would have provided more in-depth information. The researcher recommends using both approaches in future research studies.

## **Ethical Considerations**

Participation in this study was voluntary. Participants received informed consent describing the study. They had the choice to agree and participate or disagree and opt-out of participating. This study posed no risk to the participants. The information that they provided remained anonymous. The data received from this study was not misinterpreted or tampered with.

## **Conclusion**

In conclusion, the main objective of this study was to investigate the impact that exercising has on the mental health of college students. The alternate hypothesis of this study was that exercise can have an impact on the mental health of college students. Based on the responses from the participants, the researcher rejects the null hypothesis (no relationship or impact on mental health) and accepts the alternative hypothesis (exercising does have an impact, specifically a positive impact on mental health). As the results have shown, mental health issues are indeed prevalent among the college community. Several studies have researched the impact physical exercise has on the mental health symptoms of a college student. In this study, a majority of the participants reported that after

exercising, their mental health symptoms decrease. This is relative to whatever symptoms they experience, whether that is anxiety, depression, or stress.

Based on the findings of this study, most college students experience stress and anxiety as the most prevalent mental health disorder. Past studies have shown the prevalence of anxiety as well as depression, however, within this survey sample depression was not as common. When asked if they noticed their mental health improving with consistent exercise, the majority of participants agreed with this statement. It was also found that a majority of participants feel that their mental health impacts them academically, whether that is their overall academic performance, direct test scores, or even focusing on their schoolwork. These findings are all significant in showing the correlation between mental health and exercise. These mental health symptoms could arise from several factors that were not researched in depth in this study. Since a majority of participants felt that exercise benefits their mental health, it is safe to say that exercise can be a solution to help combat mental health problems. This is very significant since it supports past studies and provides a simple yet effective treatment for those suffering from mental health problems. It has been shown in this study that mental health issues have consequences and need to be deeply understood.

Based on the responses that were reported, the researcher would recommend that the participants exercise either moderately or vigorously and for 31-60 minutes at least 1-2 times weekly. Exercising more often can be of great benefit and can make the participant less likely to experience mental health symptoms.

For college institutions, the researcher proposes that they set up counseling centers for the students to utilize. The researcher suggests that they reach out to students to understand what kind of mental health issues that they could possibly be suffering from. That way students can have the resources available to help them cope with these mental issues.

Another recommendation is for the study to expand to include a larger sample size to allow for a more accurate representation of the college community. Another suggestion is possibly using a mixed-method. Integrating the qualitative study design would allow the researcher to gather rich data from the participants based on their real-life experiences. This would allow for deeper responses that can give the researcher a clear and stronger understanding of a participant's mental health.

To summarize, mental health is a very important aspect of everyday life. It has been shown that there has been a high prevalence of mental health issues specifically within the college community. There needs to be a way to combat this and physical exercise can be a possible solution.

**Appendices**  
**Appendix I- Results(Figures 7-15)**

Figure 7: Students were asked to report their gender

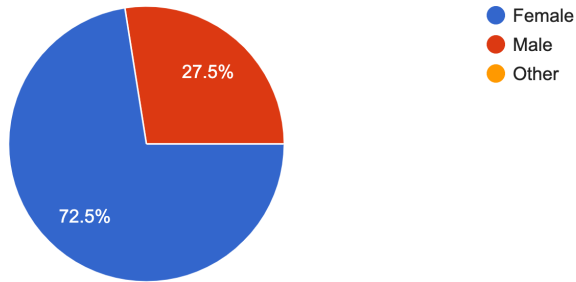


Figure 8: Students had to report their year at Kean

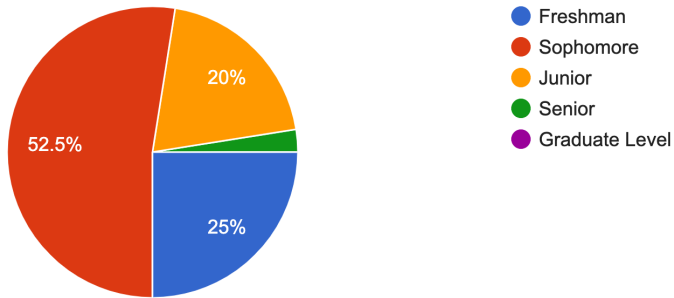


Figure 9: Students had to report their age

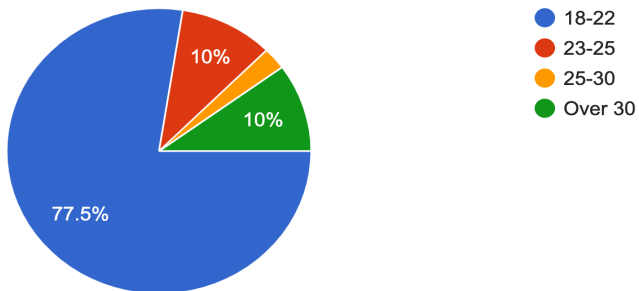


Figure 10: Students had to report their GPA

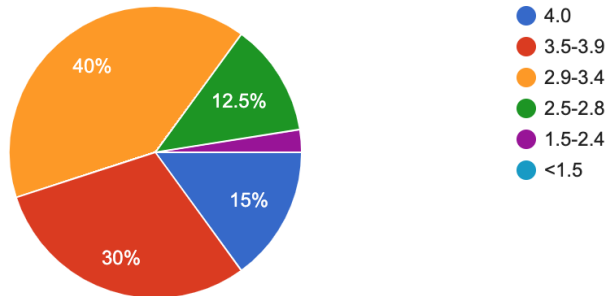


Figure 11: Students had to report how often they exercised

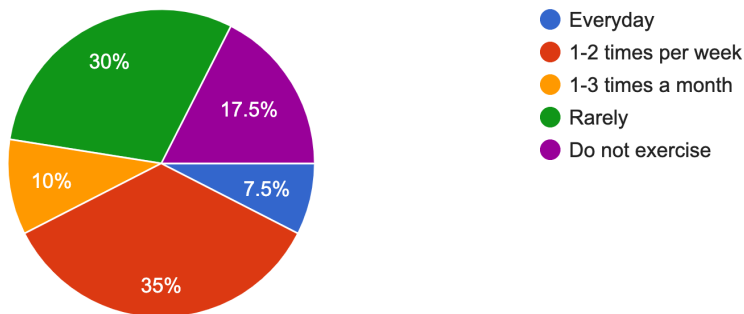


Figure 12: Students had to report how often they experience symptoms

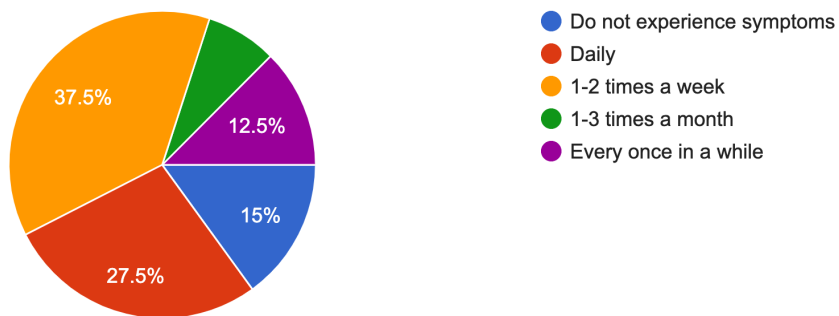


Figure 13: Students had to report if they felt that they are able to focus on their schoolwork when they experience less symptoms.

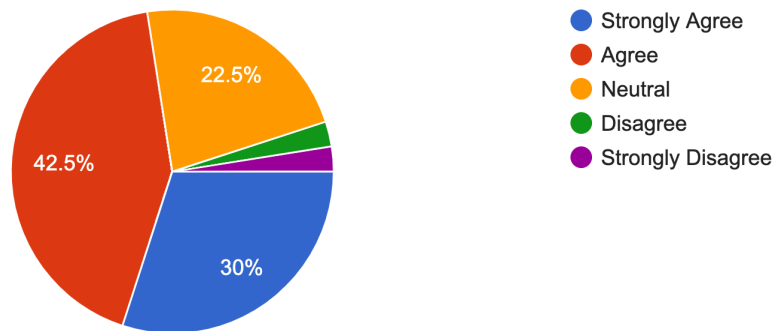


Figure 14: Students had to report if they felt that they got lower test scores because of their mental health symptoms.

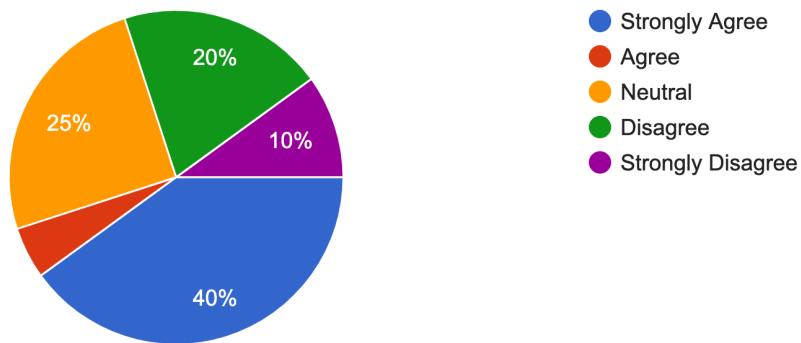
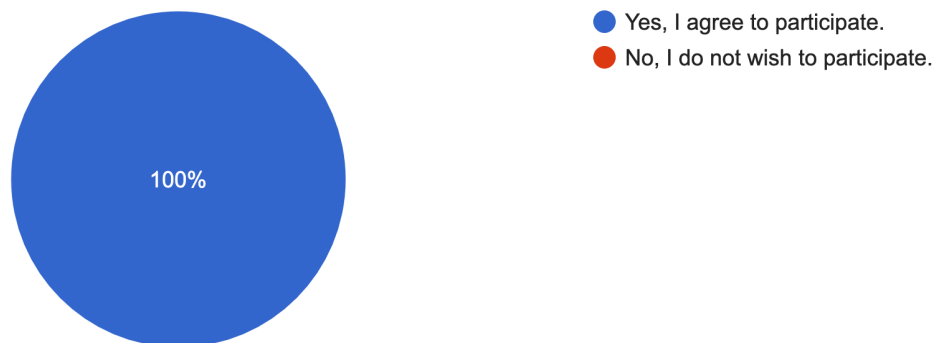


Figure 15: College students' agreement to participate in this study.



## **Appendix II**

### **Informed Consent**

Title of Research: The Impact of Exercise on the Mental Health of College Students

Name of Researcher: Maryam Eltomy

School: Kean University

Faculty Mentor: Prof. Eunice Nkansah, School of General Studies, Kean University

The study in which I have been asked to participate is about the relationship exercise has on the mental health of a college student and how mental health issues impact a student academically. If I choose to participate, I will be given a brief questionnaire that should take about 3 minutes to complete. The goal of this study is to see if exercise can have a positive impact on mental health symptoms. There are no anticipated risks to participation. I understand that my responses are anonymous in that, I will not put my name on the questionnaire. I understand that results will be reported in aggregate form so that my individual responses will not be identifiable. Information will also be kept confidential.

I also understand that I can withdraw from this study or refuse to answer any question in the questionnaire by simply leaving items blank.

If I have questions about the study or wish to find out the results of the study, I can contact Professor Eunice Nkansah (nkansaeu@kean.edu) in the Department of General Studies, Kean University, Union, NJ 07208.

### **Appendix III**

#### **Questionnaire- Survey Questions**

1. Do you agree to participate in this study?
  - Yes, I agree to participate.
  - No, I do not wish to participate.
2. What is your gender?
  - Female
  - Male
  - Other
3. What year are you at Kean?
  - Freshman
  - Sophomore
  - Junior
  - Senior
  - Graduate Level
4. What is your age?
  - 18-22
  - 23-25
  - 25-30
  - Over 30
5. What is your GPA?
  - 4.0
  - 3.5-3.9
  - 2.9-3.4
  - 2.5-2.8
  - 1.5-2.4
  - <1.5
6. How often do you exercise?
  - Everyday
  - 1-2 times a week
  - 1-3 times per month
  - Rarely
  - Do not exercise
7. How long do you exercise?
  - Under 15 minutes
  - 15- 30 minutes

- 31- 60 minutes
  - Over 60 minutes
  - Do not exercise
8. When you exercise, do you exercise:
- Vigorously (causing heavy sweating and breathing)
  - Moderately (light sweating)
  - Lightly (not breaking a sweat)
9. Do you experience symptoms of: (select all that apply)?
- Depression
  - Anxiety
  - Suicidal behavior
  - Stress
  - Other:
10. How often do you experience these symptoms [reported in question 9]?
- Do not experience symptoms
  - Daily
  - 1-2 times a week
  - 1-3 times a month
  - Every once in a while
11. After exercising do you think that these symptoms [reported in question 9] increase, decrease, or stay the same?
- Do not exercise
  - Do not experience symptoms
  - Increase
  - Decrease
  - Stay the same
12. I notice that when I exercise more consistently, it was better for my mental health.
- Strongly Agree
  - Agree
  - Neutral
  - Disagree
  - Strongly Disagree
13. I feel that these symptoms [reported in question 9] impact my academic performance.
- Strongly Agree
  - Agree
  - Neutral



- Disagree
- Strongly Disagree

14. When I experience less symptoms [reported in question 9], I am able to focus more on my schoolwork.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

15. I get lower test scores because of these mental health symptoms [reported in question 9]

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

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