Comparing the Effects of Various Exercise Regimens on the Anxiety Levels of College Aged Students

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Abstract

Purpose: The purpose of this study was to determine whether collegiate courses in yoga and pilates have a positive effect in reducing anxiety levels in college aged students. **Introduction:** Anxiety disorders are the most common mental illness in the United States, affecting 40 million adults aged 18 and older. Anxiety in college-aged students has recently surpassed depression as the number one mental health disorder on college campuses. Past studies have shown that exercise can reduce symptoms of anxiety. At Linfield, two of the most common physical activity courses taken are yoga and pilates. **Methods:** 135 total participants participated in this study during the 2018 Fall semester. 103 students were recruited from classes of yoga mindfulness, yoga vinyasa, and Pilates. 32 additional subjects who were not enrolled in physical activity courses were recruited as a control group. The participants completed a Generalized Anxiety Disorder (GAD-7) and an Adult Manifest Anxiety Scale-College Version (AMAS-C) at the beginning of the semester. The recruited students then participated in regular class activities for the remainder of the term. Subjects enrolled in the Yoga and Pilates courses were required to take part in two class sessions per week. At the conclusion of the Fall 2018 semester, students completed a second AMAS-C test. **Results:** Initial GAD-7 scores showed on average females report having higher anxiety levels than males. As expected, there is a direct correlation between GAD-7 and AMAS-C scores. After the semester long intervention, results showed minimal change in the control group and a significant decrease in AMAS-C scores for the participants in the yoga and pilates group.

Introduction

Anxiety disorders are the most common mental illness in the United States, affecting 40 million adults aged 18 and older (ADAA, 2014). Generalized anxiety disorder is described as an excessive and inappropriate worrying that is persistent and not restricted to particular circumstances (Encyclopedia of Psychopharmacology, 2015). Anxiety in college-aged students has recently surpassed depression as the number one mental health disorder on college campuses (Brown, 2015). There are multiple methods used to treat anxiety, but there is not a “gold standard” treatment that works effectively for everyone. Some methods of treating anxiety include medication and counseling. However, these treatments are not always cost effective. Exercise or physical activity of any kind is associated with lower rates of anxiety (Otto, 2011), and may be more convenient than other types of therapy due to the fact that it can be done free of cost. Multiple studies that have shown that exercise reduces anxiety symptoms (Broman-Folks, Berman, Rabian, & Webster, 2004 and Watanabe, Okada, Takeshima, & Inomata, 2000). However, few studies have directly examined the effects of various forms of exercise in alleviating anxiety symptoms. In addition, it is not clear whether collegiate physical activity/fitness training courses have a significant impact in reducing anxiety in a traditional college population.

GAD-7 Scoring Guide	
0-4	No Anxiety
5-9	Mild Anxiety
10-14	Moderate Anxiety
15-20	Severe Anxiety

Methods

135 total participants participated in this study during the 2018 Fall semester. 103 students were recruited from classes of yoga mindfulness, yoga vinyasa, and Pilates. 32 additional subjects who were not currently enrolled in physical activity courses were recruited as a control group. On the initial meeting date, students were introduced to the study and presented with the informed consent. A Generalized Anxiety Disorder (GAD-7) and an Adult Manifest Anxiety Scale-College Version (AMAS-C) was given to the students who agreed to participate. The surveys were collected and scored while the students continued with normal participation for the remainder of the term. At the end of the semester, students were asked to retake the AMAS-C survey and the surveys were collected and scored. All surveys for the yoga and pilates classes were taken directly inside the classroom. Control group surveys were conducted outside of regular class time at an assigned time and location.

Results

Figure 1: Average GAD-7 Scores Were Higher in Females Compared to Males

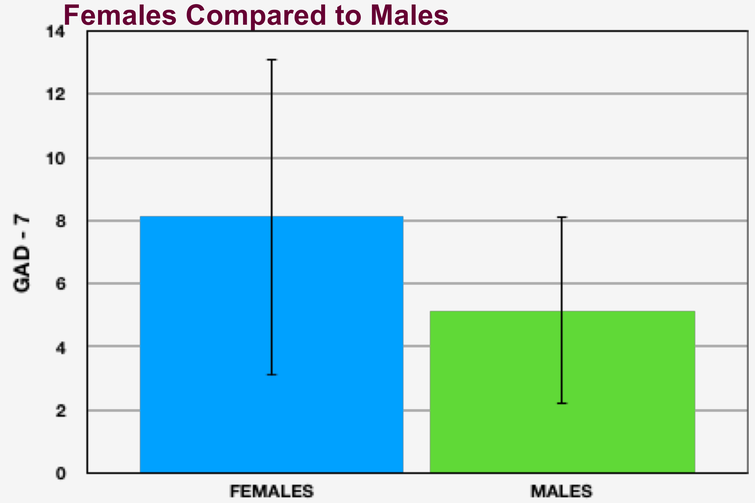


Figure 2: GAD-7 and Initial AMAS-C Scores were Positively Correlated Across All Classes P=.000

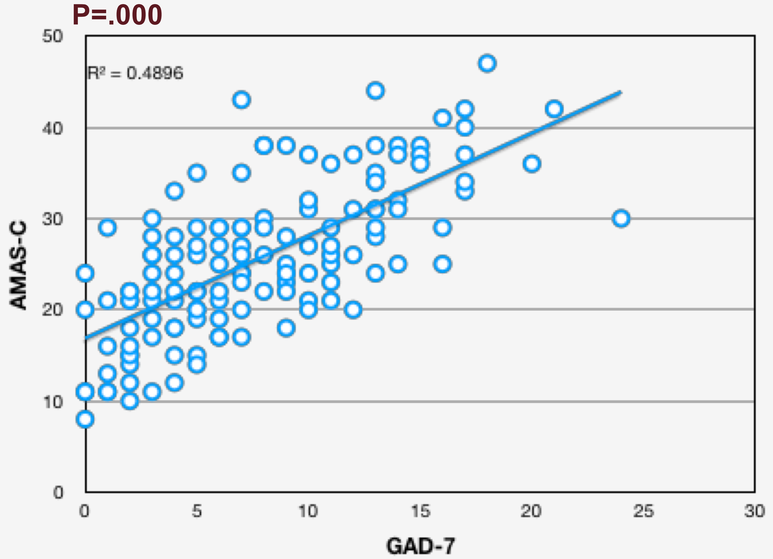
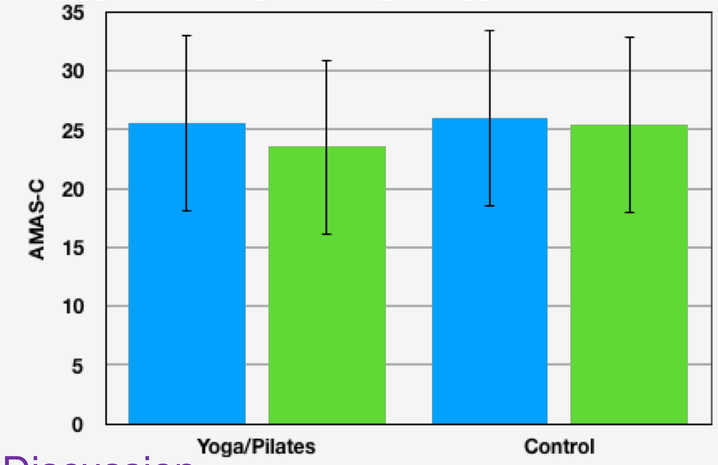


Figure 3: AMAS-C Scores Decreased in Yoga and Pilates from Pre to Post Intervention



Discussion

The GAD-7 scores of the female participants were significantly higher than those of the male participants. This could be attributed to the higher societal pressures placed on women which can increase stress and anxiety levels. At the end of the term long yoga and pilates intervention, a decrease in AMAS-C scores was observed in the intervention group that participated in a minimum of two yoga or pilates class sessions per week. The control group saw no significant change in AMAS-C scores. Like pervious research has showed, exercise can have beneficial results on mood states and anxiety levels. This allows the conclusion of yoga and pilates being a useful tool for lowering stress and anxiety. As expected, the GAD-7 was positively correlated with the AMAS-C at baseline. The results found in this study were a product of participating in yoga and pilates only two times per week. Further testing sould examine the effects that more frequent meetings, such as 4-5 times per week have on anxiety levels. Also, ideally this study would be done in larger populations with a more accurate representation of female to males ratio in order to confirm these results

Study Limitations

- Several participants (n=51) were excluded because they did not complete the follow-up survey.
- Inaccurate representation of males (21 males, 16%)
- Difficulty recruiting enough participants for the control group
- We had 16 control participants (19%) and 68 yoga/pilates participants (81%) finish the study

Acknowledgements

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