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An Investigation of the Relationship between Mental Health Disorders, Body Image Perceptions, and Form of Exercise Participated in among College-Aged Students

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ABSTRACT: The majority of research today shows how there are positive benefits from exercise on mental and physical health. Generally, these benefits include improved self-esteem and improved mood changes through aerobic exercise. With an increase in mental health disorders among college students, research on the negative effects of exercise-related on mental health disorders is limited. Within the research on the negative outcomes related to exercise, much of the literature focuses on anxiety and depression related to body image (i.e., striving to attain an unrealistic body portrayed within social media). In the current study, we focus on the relationship between self-reported symptoms of mental health disorders, including anxiety, depression, negative body image, and forms of exercise. More specifically, we address the relationship between forms of exercise, such as strength training and yoga, and their relationship to symptoms of mental health disorders. This study looks to add to existing research by surveying college students on certain mental health disorder traits and the relationship they have with their current exercise habits. In the current study, females were more likely to be unhappy with their bodies and had higher self-reported anxiety and depression scores. Our results also showed those who participated in weight training reported higher in participation for the health benefits from exercise. We also found those who participated in cardiovascular or endurance training also reported greater health benefits from exercise.



A recent Pew Research Study found 66% of Americans believe getting enough physical exercise is very important for improving lifelong health (2017). Many Americans are aware of the physiological and physical benefits from exercise such as a lower risk for heart disease and better quality of life; however, some may not realize how beneficial exercise is to mental health. More and more research shows that there are multiple aspects that arise from daily exercise such as increased self-esteem, lower stress levels, improved self-image, and increased motivations (Taylor et al., 1974; Erixon & Archer, 2019; Peluso, & Andrade, 2005; Taylor, Sallis, & Needle, 1985). Another benefit from exercise is an increased release of endorphins, which improves our mood and makes us feel good and even confident. Additionally, group exercise with other individuals or friends can reduce stress, improve body esteem and positive body image (Axelsson & Langdon, 2017; Peluso, & Andrade, 2005). Aerobic exercise and group exercise such as running, swimming, and dancing have been linked to improved mood, improved self-esteem, and reduced anxiety and depression as well (Moura et al., 2015).

Anxiety and mental health issues are a concern across many groups in the United States. Most teens in the U.S. state that anxiety and depression are a significant problem among people in their age group (Pew Research Center, 2019). While some cases go unreported, the Center for Collegiate Mental Health (CCMH) found more and more college students are requesting services for mental disorders (2018). Further, 75%

of individuals will start to see onset symptoms between the ages of 18 and 24, making college such a crucial time to address these concerns (Center for Collegiate Mental Health, 2018). Many factors related to physical health could lead to mental health issues, including “the freshman 15” (i.e., quick weight gain upon entering college), leaving home for the first time, living in a new environment, and lack of sleep.

The majority of research on mental health and exercise investigates how increasing physical activity levels can relieve everyday stress (Moura et al., 2015). Over time, stress could lead to symptoms of mental health disorders (Moura et al., 2015). Few research studies investigate the side effects of exercise that lead to worse symptoms of mental health disorders (Moura et al., 2015, Bartholomew & Linder, 1998). The current research study explores the relationship between existing symptoms of mental health disorders and their correlation with form of exercise (e.g., anxiety and cardio). Extending the research on symptoms of mental health disorders and form is important because there could be a relationship between increased or worsening mental health and exercise. In other words, exercise could be problematic for individuals who use it obsessively or in other negative ways due to mental health disorders.

The aim of this study was to compare different exercise modalities such as frequency of exercise, strength training, mind and body exercises, aerobic exercise, and group exercise. We were particularly interested in and focused on mental health disorders related to anxiety, depression, and negative body image. More specifically, the aim of the current research study was to investigate symptoms of mental health disorders and the form of exercise among a sample of college students.

Literature Review

Exercise and Mental Health

It is recommended that individuals get on average 150 minutes of aerobic training per week, 30-60 minutes a day of moderate-intensity, or 20-60 minutes of vigorous-intensity (ACSM, 2019). These recommendations can also be met with 10-minute bouts of exercise daily (ACSM,

2019). Two to three days should be dedicated to resistance training with a focus on light, moderate, and high-intensity formats (ACSM, 2019). Individuals should also perform flexibility and neuromotor exercises, two-to-three days a week (ACSM, 2019). According to the CDC, only 53.1% of adults ages 18 and older met the guidelines for aerobic training, and only 23.5% met the guidelines for muscle strength training (2018).

Much research on exercise highlights the benefits on an individual’s mental and physical health (Moura et al., 2015; Peluso & Andrade, 2005). For example, aerobic exercises such as dancing have been shown to improve mood, depressive, and anxiety symptoms for a couple of hours or up to one day after a single bout of exercise (Peluso & Andrade, 2005; Moura et al., 2015). Similar results were shown for anaerobic training, including bodybuilding; however, these results did not occur until a few hours after the exercise was completed (Peluso & Andrade, 2005). Similar research compared the mental health effects of swimming and yoga. While both populations reported greater decreases in anger, tension, and depression, yoga showed greater changes in mood improvement (Berger & Owen, 1992). Some research explains these results as evidence that deep diaphragmatic breathing is the main cause of these changes. On the contrary, some research points to the idea that stretching and relaxing larger muscle groups may also be the reason we see these improvements (Berger & Owen, 1992). Regardless of the science behind exercise, it has been shown to improve mental health.

Other research on exercise explores the psychosocial benefits such as self-efficacy, social aspects, and distraction from the stressors affecting individuals (Peluso, & Andrade, 2005). Working out with others or participating in group classes promote a motivational culture which introduces a new sense of support from that community (Moura et al., 2015). This, as well as other aspects of exercise, allows for more confidence in one’s self as well as a shift from negative perceptions to more positive ones. These can ultimately shift negative body image to positive (Peluso & Andrade, 2005). A

meta-analysis summarized results concluding that positive body image was associated with exercise (Frisén & Holmqvist, 2010). For individuals in these studies, exercise was viewed as a natural means of life as well as an essential aspect of their daily schedules.

Although most research supports the positive benefits associated with exercise, negative outcomes could cause serious problems later down the road. Exercise has been shown to have adverse effects such as overtraining, body dysmorphia, and steroid misuse. These effects have been shown among individuals obsessed with exercise and have worsened moods that can lead to aggressive, depressive, and irritable states (Raglin, 2015; Bartholomew & Linder, 1998). Higher intensity exercise has been shown to cause the onset of panic attacks and anxiety symptoms (Peluso & Andrade, 2005). Other research has linked running to negative impacts such as “running addiction” and increased level of anxiety seen in elite runners (Taylor et al., 1974). Many times, running has been labeled as neurotic in these cases because these individuals put running before family, work, and medical advice (Taylor et al., 1974). Other forms of exercise have also been linked to muscle dysmorphia, where individuals who participate in bodybuilding or heavy weightlifting perceive themselves as small and skinny even though they are large and muscular (Lauderdale, Yli-Piipari, Irwin, & Layne, 2015; Peluso & Andrade, 2005). Additionally, anabolic steroid use and higher intensity exercise have led to worsened mood states and even increased depressive symptoms (Peluso & Andrade, 2005).

Exercise and Mental Health among College Students

The transition from high school to college is stressful in and of itself. With all the added opportunities, many things students want to do or already do tend to fall off their list of priorities, cutting down on exercise and other physical activities. The low involvement of physical activity is a serious concern, especially for college students. Research has found that about 43.6% of students met recommendations for exercise and that 35% of students are overweight or

obese, according to the American College Health Association. One study looked at the rates of sport participation and the effects on athletic identity (Downs & Ashton, 2011). Those individuals who became college athletes stayed on a strict schedule with their exercising but those who went from a high school athlete to a non-athlete in college, showed declines in physical activity (Downs & Ashton, 2011). Downs and Ashton also found in other research that 44% of college students said their academic performance was affected by their mental and emotional health, in which many college students relate to poor dietary behaviors (2011). This is important to note because overweight college students are more at risk of becoming obese in their later years, leading to adverse long-term health consequences (Downs & Ashton, 2011). More specifically, vigorous physical activity has been shown to induce short term decreases in anxiety and depression (Downs & Ashton, 2011; Peluso & Andrade, 2005).

Anxiety and Depression

Anxiety and depression stem from various things, such as stressful environmental factors and genetics. Many college students reported feeling stressed most of the time, especially those who are away from home and feel alone in a new environment (CCMH, 2018). According to the CCMH, 61.8% of students said they were concerned with anxiety, and 49.8% were concerned with depression (2018). Anxiety disorders are also very prevalent, with approximately 40 million people starting at the age of 18 suffering from them in the U.S. (CCMH, 2018). Additionally, depression continues to increase among college students, which is the leading cause of disabilities in the U.S., affecting ages 15-44 (CCMH, 2018). While both mental health disorders are treatable, only 36.9% receive treatment (CITE). Some studies suggest that students from Asian descent suffer from higher amounts of academic stress than their Western counterparts and are less likely to report their symptoms, which might explain lower rates among this population (Lu et al., 2015). Regardless of race or ethnicity, untreated mental health disorders can result in

harmful and life-threatening behaviors. Data received from 139 institutions showed that 26% of students intentionally hurt themselves, and another 33.2% considered suicide (CCMH, 2018). Additionally, nationwide suicide rates have increasingly becoming the 10th leading cause of death (American Foundation for Suicide Prevention, 2017).

Thoughts of suicide, the act of suicide, and self-inflicted harm are not the only methods that students turn to when faced with anxiety and depression. Many college students become at risk for substance abuse such as binge drinking, smoking marijuana, and participating in risky sexual behaviors to cope with their emotions (Lu et al., 2015; Johnson, 2011). These substances not only affect their mental health but also start to affect their physical wellbeing. Increased weight and risky sexual behaviors from negative coping mechanisms can lead to the contraction of sexually transmitted infections as well harmful physical health symptoms (Centers for Disease Control, 2018).

Gender differences have been found, with women having more diagnosed anxiety and depression than their male counterparts (ADAA, 2018). However, women are more likely to report their depression than men. Approximately 46% of women and 35% of men reported their depression to be so bad that they hard times functioning (CCMH, 2018). Women are also more prone to have anxiety symptoms emerge earlier in life than males. By the age of 6, women will be about twice as likely to have experienced an anxiety disorder (Afifi, 2007). Studies also show that while women are not more susceptible to negative things occurring in their life, those without a stable support system, tend to be more vulnerable than men who have not support system (Afifi, 2007). Studies conducted found that women tend to worry more as well as worry about lack of confidence in themselves (Afifi, 2007).

Body Image

Body image is a form of mental health that affects the way someone perceives the way they look and how they think others view them (e.g., attractive, ugly). Perceptions of body image

are often tied to beliefs about traits that are desirable or undesirable relative to a culture. Approximately 80% of women compare themselves to media portrayals of beauty (Holmviqst & Frisen 2012). In Holmviqst & Frisen's study (2012), ideal body types for men were muscular, fit, tall, and broad. In this same study, ideal females were described as having thick long hair, a pretty face, and pouty lips. Women and men show comparable data of dissatisfaction of their bodies; however, what they find problematic may differ (Furnham, Badminm, & Sneade, 2002). For example, underweight men were not happy with their bodies whereas women were happy with being underweight (Furnham et al., 2002). Women and men also differed in their motivations to workout. Women focused more on the physical aspects of exercise such as what their bodies looked like on the outside and how they felt they looked (Lauderdale et al., 2015). Women also presented with more traits of eating disorders than men who focused more on gaining weight to fit the widely known V-shape that society claims are how they should look (Furnham et al., 2002).

In response to these social constructs, adolescent boys argued that the main reason they wanted muscles, was so they would enhance their sports performance as opposed to having them for aesthetic reasons. The girls also compared exercise to sport performance in addition to spending time with friends and personal health (Holmviqst & Frisen, 2012). Other ideals looked at sports considered masculine, such as football and soccer; and sports that were considered feminine, such as gymnastics and ice skating (Chalabaev et al., 201; Clément-Guillot 2013). Individuals were more apt to participate in the sports society labeled for them because if they branched out, they felt as if they would not be accepted or welcomed in other sports. Other influences on their decision were based on parental decisions. If the parents did not support their daughter or son playing a specific sport, the child felt less inclined to try out for it (Chalabaev, et al., 2013). The support ranged from attending games to accepting them playing. On the contrary, females who participated in more masculine sports, tended to dropout

less frequently because of the nature of the sport. This ideal stems from the concept that masculinity is more positively accepted in the athletic realm than femininity (Chalabaev, Sarrazin, Fontayne, Boiché, & Clément-Guillotin 2013).

Dissatisfaction with one's body image has often been tied to eating disorders in women (Adrian et al., 2002). Most cases saw that this stemmed from the thin ideal" as well as being an athlete. The thin ideal has been portrayed across various sources from media uses such as television commercials to newer and more heavily used sources by college students such as Facebook and Instagram (Cohen & Blaszczynski, 2015). Research on body image and eating disorders in men is low and does not have clear connections (Adrian et al., 2002). Women are more likely to weigh themselves often and refer to themselves as fat even if they are not. Women also tend to feel a sense of failure if they do not achieve the "accepted standards" of society leading to an overall lower quality of life (Pinkasavage et al., 2015). Men tend to see themselves as too small when they are not (Adrian et al., 2002). In the Western society, many individuals turn to dieting and exercise as a means of altering their bodies. Dieting has been shown to have a direct tie to eating disorders later in life and that exercise was used to lose weight faster or hide their use of dieting (Adrian et al., 2002). Dieting has also been linked to lower physical activity levels and poor sleep quality which in previous studies has been related to higher levels of screen time.

Increased screen time and lower physical activity levels has also been shown to negatively impact college students' mental health (Wu et al., 2015). Screen time depicted in the studies consisted primarily of social media use as well as some forms of digital media (Wu et al., 2015). Adrian et al. surveyed students and compared the results to prior research and found that males were starting to adopt more eating disorders as opposed to research which stated that women were the main ones affected. Overall, men and women regardless of eating disorders, used exercise to change their appearance through anatomical changes (Adrian et al., 2002). Negative body image is inevitable for college students

because they cannot escape societal pressures of having the perfect body image. Rigorous exercise is used by individuals who suffer from negative body image, in order to achieve the anatomical changes they want to see such as weight control (Adrian et al., 2002).

Currently, there is a lack of comparison between individuals with symptoms of depression, anxiety, and negative body image to those who were not symptomatic (Lewinsohn & Seeley, 1998). This could show if improvements in mood are more likely among participants who have symptoms of anxiety, depression, and poor body image, or if these benefits are more prevalent among those without mental health disorder symptoms. Other outcomes from this research can assist in determining if certain forms of exercise benefit sufferers of mental health disorders more than others. We predict that with better understanding of both the positive and negative effects of forms of exercise on mental health, exercise itself can be better prescribed as a means of medication for college-aged students that suffer from some symptoms of mental health disorders.

Hypotheses

Based off the previously discussed research we expect there to be certain patterns in the results. First, we expect females to present with more concern for their body image than males. Next, we predict that those who are on social media more will have higher stress than those who are on social media for less time. More specifically, our hypotheses are:

1. Females will have more concern for their physical appearance than males will.
2. Those who put more time into social media will have higher levels of negative body image.
3. Form of exercise will be directly related to symptoms of mental health disorders (i.e., anxiety and depression).
4. Physical activity/exercise will show both a positive and negative relationship with body image.

Methods

This study was conducted using a sample of undergraduate students at a small private liberal arts college located in Florida. With little to no

research conducted on the effects of different forms of exercise and mental illnesses, data collected could be beneficial in creating a bridge between exercise and medicine. Researchers have already started to find that exercise can improve mental health as well as hurt mental health. With the understanding of whether certain forms of exercise can trigger these mental illnesses, health professionals can limit drug prescription and prescribe exercise as a form of medication. This is more important now than ever with a rise in prescription drugs and opioid addiction across the U.S.

Self-administered surveys were distributed to various disciplinary fields, including exercise science classes, sociology classes, and a general education class. The surveys were also distributed to two organizations on campus including sororities and the health and wellness center on campus to enhance our research. The survey was used to assess student's perception of their mental state to determine symptoms of anxiety, depression, or negative body image. The study also assessed the student's physical activity habits including form of exercise participation and duration.

The first set of questions included demographic questions such as gender/sex, and race/ethnicity. Some questions also gathered information regarding their current physical activity and social media habits noted later in this section. The question regarding gender was coded as: Female = 1, Male = 2, Other = 3, N/A = 9. Race/ethnicity was coded as White/Caucasian = 1, Black/African American = 2, Hispanic = 3, Asian = 4, Other = 5, N/A = 9.

This study contained seven independent variables including the demographics listed above. The next set of independent variables addressed social media usage. The first question identified the number of hours the participant spent on social media with the following question addressing whether the participant received social media notifications. The remaining dependent variables discussed the type of social media platform and whether the participant was a student athlete.

Additionally, this study contained numerous dependent variables. The dependent variables

centered on five themes. One theme consisted of question about the form of exercise that was participated in. Some questions included "Do you participate in group or team exercise?" and "How many sessions per week?". All the following themed questions were done through a Likert scale of 1- Strongly Disagree, 2- Disagree, 3- Neutral, 4- Agree, 5- Strongly Agree. The second theme assessed how the participants perceived themselves through questions such as, "I avoid taking pictures based on my appearance." The third theme aimed to determine symptoms of anxiety or depression through stress: "Migraines" and "Feeling blue or sad." The final themes determined whether the individual participated in exercise for health benefits or to look good.

When using the Chi-Square test, no variables were recoded. However, variables were re-coded for the Linear Regression test, ANOVA, and the T-test. RACE was originally coded as White/Caucasian = 1, Black/African American = 2, Hispanic = 3, Asian = 4, Other = 5, N/A = 9. It was recoded as White/Caucasian = 1 and Non-White = 0. All the questions that referred to the form of exercise participated in were recoded as a scale with ten items: EXERCISESCALE. The next set of questions that assessed body image were recoded as IMAGESCALE containing twenty-six items. All questions referring to symptoms of anxiety or depression were recoded as STRESSSCALE and contained twenty items. The final two themes of questions were recoded as POSITIVEEXERCISE, which included three items addressing health benefits, and LOOKEXERCISE, which included three items that represented participation in exercise to "look good".

Results

A total of 186 undergraduate students participated in this study. Table 1 depicts the demographic variables presented in this study. Due to majority of the sample being white, our race/ethnicity variable was re-coded into white and non-white showing 76.9 percent being white and 22.0 percent being all other races. Out of the completed surveys, 61.8 percent were females and 38.2 percent were males. Of the students surveyed in this research, 85.5 percent reported

Table 1: Demographic Variables of Measuring Social Media Use, Exercise, and Body Dissatisfaction on College Campus

	<i>n</i>	%	<i>M</i>
Ethnicity			
White	143	76.9	
Non-White	41	22.0	
N/A	2	1.1	
Gender			
Female	115	61.8	
Male	71	38.2	
Do you get social media notifications?			
Yes	159	85.5	
No	27	14.5	
Do you exercise on a weekly basis?			
Yes	139	74.7	
No	47	25.3	
Estimate how many hours per week you spend on social media			14.27

getting social media notifications whereas, only 14.5 percent reported having none. Additionally, 74.7 percent of respondents reported exercising on a weekly basis with only 25.3 percent saying they did not. It was also found that the average amount of hours a student spends on social media per week is 14.3.

Hypothesis 1: Gender and Physical Appearance

To analyze the data for significance, we conducted a chi-square test to explore the relationship between students’ gender and how many hours they spent in physical activity a week. The relationship between gender and hours spent on physical activity per week was found to be not significant, $X^2 (1, N= 186) = 2.95, p = .086$. While this test showed no significance, it was close to significance and it is important to note because if the sample size covered gender more equally and had more participants it might show more significance.

The next variables we tested were the participants’ gender and their perceptions of their own image or appearance. We conducted a t-test on gender and the IMAGESCALE. The data shows

that there is a significance between the participants’ gender and how the person views their own appearance or image, $t(166.42) = 3.88, p = .000$. This supports the hypothesis that females have more concern for their physical appearance than males do.

Hypothesis 2: Social Media and Body Image

Additionally, we conducted a correlation between the number of hours the participant spent on social media and the STRESSSCALE. This scale represents participants’ symptoms of anxiety and depression through stress questions. The correlation between hours spent on social media and the participants’ stress was significant, $r (179) = .15, p = .042$. This supports our hypothesis because those that put more time into social media, showed greater levels of stress. This also supports the second hypothesis comparing social media to negative body image supported with Pearson Correlation.

Hypothesis 3: Form of Exercise and Mental Health

Furthermore, we also ran two multiple regressions tests between gender and certain forms of exercise that were participated in as well as the number of hours spent per week in these activities. The first multiple regression test compared STRESSSCALE with participants’ gender and whether they partake in group or team exercise, mind/ body exercise such as yoga, endurance or cardiovascular training, and weightlifting. The current regression model was found to explain 14% of the variance. A significant regression equation was also found, $(F(5, 177) = 7.045, p = .000)$. The gender of the participant showed to be the only significant variable on participants’ stress score. As gender of participant increased by one standard deviation, the participants’ stress score decreased by .369 standard deviations holding all other variables in the model constant. No other variables in the regression test were significant. This data shows that females suffer more form mental health issues in terms of stress than males do. The second

Table 2: Exercise and Mental Health

Predictor Variable	Stress Score		
	<i>b</i>	S.E.	B
Gender/Sex	-6.472	1.664	-2.52**
Hours	.075	.045	.105
Imagescale	.422	.061	.444**
TeamExercise	2.932	1.672	.112
Relaxation	1.561	1.787	.057
CardioTraining	-.462	1.807	-.018
WeightTraining	1.198	1.125	.072
Constant	16.802	6.574	
F value		13.639**	
R²		.33**	

*p <= .05 **p <= .001

multiple regression test compared participants' STRESSSCALE with gender of participant and how many hours they participated in per week for each form of exercise described above. There were no significant variables in this test.

Similarly, two t-tests were conducted to assess the relationship between physical activity/exercise and body image. Both tests were found to be significant. Those who participated in weight training reported higher in participation for the health benefits from exercise, $t(74.51) = 4.89$, $p = .000$. The second test found that those who participated in cardiovascular or endurance training also reported higher for the health benefits from exercise, $t(42.02) = 4.38$, $p = .000$. Both results strengthen the argument for exercise having a positive effect on both body image and mental health.

Hypothesis 4: Relationship to Mental Health

Lastly, we ran a multiple regression test to determine a participant's stress score on several independent variables depicted in Table 2. The current regression model was able to explain 33% of the variance. We also found a significant regression equation, $(F(7, 170) = 13.64, p < 0.05)$. Two variables were found to be significant at $p < .05$. Imagescale had the biggest effect on a participants' stress score. It was found that

as the imagescale score increased one standard deviation, the participants' stress score increased by .444 standard deviations, holding all other variables constant. The participants' gender also influenced their stress score. It was found that as gender moves one standard deviation, the stress score decreases by .252 standard deviations. This supports the final hypothesis because those that participate in exercise for their appearance, will have higher stress levels than those who participate in exercise for the positive benefits.

When comparing the form of exercise participated in to symptoms of mental health, it was found through a t-test that those who participated in group or team exercise classes focused more on the positive effects of exercise as opposed to looking good, $t(117.86) = -2.51$, $p = .000$. This provides evidence that the form of exercise the participant partakes in is related to certain symptoms of mental health.

Discussion

In this study, our goal was to investigate the relationship between mental health disorders, body image perceptions, and form of exercise participation among college aged students by taking into consideration demographics, current physical activity habits, and current social media habits with perceptions of body image and

symptoms of anxiety and depression through a stress scale. We originally believed that form of exercise, gender, and time spent on social media would impact a student's mental health both negatively and positively. When addressing our first hypothesis, the results supported that females had more concern for their appearance than males did. Previous studies also state this finding and show that females felt more pressure to look a certain way based on societal norms (Cohen & Blaszczynski, 2015; Adrian et al., 2002). Females depicted in previous studies have also shown a need to "look good" in order to be accepted and liked by their peers (Brennan et al. 2010).

Results of this study also supports the second hypothesis stating that those who put more time into social media, will show higher levels of negative body image. A study conducted by Holmviqst & Frisen (2012), found that majority of women reported comparing themselves to models on social media platforms. This is especially true for college aged students (Cohen & Blaszczynski, 2015; Wu et al., 2015). One reason that explains this trend is the fact that many "fitness models" post videos and pictures on social media that portray body types that are not always true or easily attainable (Cohen & Blaszczynski, 2015). Many times, people will crop and edit photos to make themselves more appealing (Holmviqst & Frisen, 2012). This can negatively impact not only body image but also mental health disorders such as anxiety and depression.

When it came to our third hypothesis on form of exercise having a direct relationship to symptoms of health disorders, there was not a lot of research or strong results that supported this. Although we found significance with gender impacting stress, no other variables were significant. It is found in research that females tend to have more stress and higher rates of depression and anxiety. One explanation is that females show symptoms at an earlier age than males and that males fail to report symptoms or concerns with anxiety and depression because they do not want to look weak in the eyes of society (Afifi, 2007). One test did find that group exercise participants showed more reasons to exercise for

the health benefits of exercise. While this is also significant, it does not give enough evidence to confirm nor deny this hypothesis.

Similarly, the last hypothesis addressing physical activity/exercise to both positive and negative relationships showed some significance for positive effects including the benefits that occur from exercise. These include but are not limited to increased mood, increased performance, sense of community, etc. (Moura et al., 2015). These show positive impacts on mental health and have even shown to decrease symptoms of anxiety and depression (Peluso, 2005). Although this significance is important to the research, the lack of evidence for negative effects should also be noted. Previous research has found negative impacts to mental health disorders occurring from physical activity such as running addiction or even body dysmorphia. While the research for some of these is becoming more prevalent, research that addresses certain forms of exercise causing anxiety and depressive symptoms is still lacking.

Some explanations for the results that we got include the fact that the main area of distribution of surveys was the FSC wellness center. Individuals who filled out the survey from this location, could be why the reason for exercise was health benefits due to them having a set routine versus those who do not regularly exercise. This is the same for those who took the survey from the exercise science department. Other explanations as to why we got the results that we did could be failure to answer the survey honestly. More specifically, participants could have exaggerated their answers to the questions or underestimated how many hours they participated in social media or exercise. There are also many limitations to this study that could have affected the results discovered.

Limitations

Some of these limitations include the population and sample of the study. The population was college students from a private school. Private schools tend to be smaller in numbers and tend to lack in racial diversity (majority white). Another limitation was that the population of this small college has a 2:1 ratio of females to

males. With a bigger population and comparison between public and private universities, the generalizability of this study will increase substantially because of the increase in race, gender, and sample size. Additionally, the training age of the individual has an impact of this study. Those who have been training for a longer time may have more knowledge of the health benefits and stages of training than those who are particularly new to training or use classes or personal trainers to create their workouts. The final limitation for this study is that while the college aged population is an important factor to address, this study only assessed symptoms of anxiety and depression through perceived stress scores. This can cause individuals to over rate their stress levels or even have participants' state they have anxiety or depression when they do not. In order to make this study more impactful, studying individuals who have been diagnosed with anxiety or depression will make the evidence stronger.

Further Research

This study could be examined and performed differently in order to acquire more results. One step is to create a study that is more experimental than descriptive based. This will allow for more solidified answers than those that are obtained for surveys. This study could also provide guidelines towards establishing parameters for certain forms of exercise as a substitution for medicinal products. These changes as well as finding ways to prevent the limitations listed above, can make this research study stronger and open more doors to addressing the relationship between mental health disorders, body image perceptions, and forms of exercise participated in among college aged students.

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Contributor Bios

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Chastity Blankenship earned her Ph.D. in sociology from the University of Central Florida in 2011. Currently, Dr. Blankenship is an Assistant Professor of Social Science in the Department of Criminology at Florida Southern College. Dr. Blankenship is also the Chair for the Women and Gender Studies Minor at her institution. She has a variety of research area interests, which broadly include issues related to social inequality.