DEPRESSION AND EXERCISE: DOES EXERCISE HELP PEOPLE WITH DEPRESSION?

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Depression is a worldwide health problem that is experienced by many individuals throughout all age groups and especially the youth. Depression can cause many social and emotional problems such as mood swings and low self-esteem. Unfortunately, if not managed, depression can lead an individual to commit suicide. Studies have shown that exercise is an effective alternative in the management and treatment of depression. This proposal will look into how depression in college and university students can be successfully managed with exercise. In this proposal, the Patient Health Questionnaire (PHQ-9) will be used to study the levels of depression. It will also discuss various types and intensities of exercise and their effects. This proposal will reveal that individuals who manage their depression with exercise see positive results and have more control over their symptoms.

Introduction

According to the World Health Organization (WHO), depression is second on the list of global healthcare problems (Krogh, Hjortoj, Speyer, Gludd, & Nordentoft, 2015). Depression affects one in five people with a sizeable number of cases occurring in the youth and it is also the leader on the list of global burden of disease in people younger than the age of twenty-five (Bailey, Hetrick, Rosenbaum, Purcell, & Parker, 2017). Out of the total world population, it is estimated that about 15% experience various levels or intensities of depression (Bailey et al., 2017). Depression causes multiple unpleasant symptoms such as sadness, guilt, low self-confidence and changes in sleep patterns and eating habits. Additionally, depression increases one's risk of committing or attempting suicide. Furthermore, depression is a contributing factor to suicide, particularly in university students and increasing the chance of substance abuse (Alsaraireh & Aloush, 2017).

Depression is a significant public health problem where those afflicted with it are usually prescribed medications and psychotherapy (Helgadottir, Forsell, Hallgren, Moller, & Ekblom, 2017). However, those medications usually have negative side effects that gets in the way of successfully treating depression (Helgadottir et al., 2017). Both psychotherapy and medications come with a high price tag that can be hard to afford for some (Krogh et al., 2015). While there are some effective treatments available, only about 35%-50% of depression would be eased (Harvey, Overland, Hatch, Wessely, Mykletun, & Hotopf, 2017). Due to the modest results of treatments, reports say that there is anywhere between 12% and 40% of a dropout rate in clinical trials which usually occurred after 6-8 weeks of treatment (Krogh et al., 2015).

An alternative method to treat depression is exercise. A study of rodents running on wheels has shown to be effective for improving the effects of depression (Morgan, Singhal, Corrigan, Jaehne, Jawahar, & Baune, 2018). When patients with clinical depression were referred to exercise programs, there was little to moderate effect on the symptoms of depression (Krogh et al., 2015). If all adults exercised for only one hour per week, then 12% of new cases of depression could be prevented (Harvey et al., 2017). Given all this information, this proposal research question is: what are the effects of exercise on depression? The hypothesis is that exercise will affect depression in a positive way and it will provide them with additional benefits.

Background

There are many benefits of exercise that allow individuals to feel better about themselves both on the inside as well as the outside. When depressed people engage in physical exercise and receive positive feedback from others, it creates a feeling of self-efficacy. Self-efficacy helps build confidence in one's self and makes it easier to combat depression. Moreover, being in the habit of exercising in gyms or other facilities gives people the opportunity to socialize with others. This serves as a distraction from negative thoughts and could result in improved mood (Bailey et al., 2017). The benefit of socializing while exercising could be an important part of the process to help treat depression. Furthermore, mastering a new skill, such as some type of exercise, will act as a motivator, help manage depression and improve one's mood (Lawlor & Hopker, 2001). All of these benefits of exercising help build motivation in individuals as well as feelings of accomplishment and self-confidence which result in easier management of depression.

The intensity of exercise also plays a significant role. According Heinzel et al. (2017), those in a high intensity exercise group compared to a low intensity exercise group will have better performance in the neuropsychological test and a positive effect on depression. Helgadottir et al. (2017) says that if one exercises according to public health recommendations, then depression would be reduced at a higher rate than if one exercised below that recommended amount. Another study found that exercising for a longer amount of time was more effective in treating depression than exercising for a less amount of time (Helgadottir et al., 2017). Helgadottir et al. (2017) showed that those who participated in high intensity weight training had better results in treating depression than those who participated in low intensity weight training. In treating depression, there was a recommendation of engaging in exercise of 60%-80% of maximum heart rate (MHR). However, one review found that 61%-74% of MHR was less effective than lower and higher intensity of physical activity (Helgadottir et al., 2017). The results of another study showed that intensity was not a huge factor because all three groups of varied exercise levels experienced similar results in reducing their depression (Harvey et al., 2017).

The type of exercise is also an important factor in determining whether exercise has an effect on depression or not. Bailey et al. (2017), stated that anything can be categorized as exercise as long as any part of the body moves by the skeletal muscles which causes the use of energy more than resting levels. Another study included yoga because the researchers believed that it gives a positive response to participants with depression (Helgadottir et al., 2017). In another study, the researchers' intervention included only aerobic exercise which increases heart rate, breathing and sweating showed that aerobic exercise had meaningful results in reducing depression (Pritchett, Daley, & Jolly, 2017).

Several types of people may be afflicted with depression. A recent study found that when nursing students engaged in exercise, they showed a significant drop in depression scores (Alsaraireh et al., 2017). Bailey et al.'s (2017) study found exercise as a treatment to manage adolescents' depression showed to have positive results. Furthermore, because young people seem to easily incorporate physical activity into their lives, they can have an easier time to manage depression with regular exercise. In another study of postpartum women, it showed that exercise (this study focused on aerobic exercise) was an effective treatment to manage postpartum depression (Pritchett et al., 2017). Because of its effectiveness, the authors of this study believe that exercise should be a depression-management option for postpartum women. Furthermore, in the study of Pritchett et al. (2017) there was heterogeneity (diversity in character/content) present which could have influenced the results because some individuals could have managed their depression with exercise better than others. Also, a bonus benefit is that exercise is an extremely low cost to free intervention and it is

easily available.

Moreover, mindfulness meditation is also comparable to exercise as a way to manage depression. In the study of Alsaraireh et al., 2017, researchers compared mindfulness meditation versus exercise in managing depression. The results of the researchers' study showed that both meditation and exercise were effective in treating depression in nursing students, however mindfulness showed slightly more favorable results than exercise.

Methods

Study Design

Prospective longitudinal design has been chosen for this research. This design will span over a fairly lengthy period of time including more than one time point to assess to what point the independent variable effects the dependent variable.

Participants

This study will focus on depressed college/university students. Specifically, the students will be in the state of Washington. The students will be between the ages of nineteen and twenty-six. 800 depressed students, male and female, will be selected from colleges and universities around the state. There will only be one cohort of students. The sampling method to be used will be multi-stage sampling. Since there is a large population, multi-stage sampling seems appropriate for this research. Ten counties will randomly be chosen in Washington State. Then between three to five colleges/universities will be chosen from each of the ten counties. Then students from the randomly chosen colleges/universities will be chosen to participate in the study. However, it will be important to make sure that the randomly chosen students self-identify themselves as being depressed.

Ethical Considerations

Participation in this study is voluntary. Information and data obtained from the participants will remain confidential. Consent forms will be needed to inform the participants of anything that could happen. The participants will be informed that all the conductors of the study will adhere to the Health Insurance Portability and Accountability Act (HIPAA) to make sure that all the data collected will remain private. The proposal of this study design and sampling methods will need to be reviewed by the Institutional Review Board (IRB) from the colleges and universities to approve the study. Additionally, no harm will be done to the participants and they will have the choice to drop out at any time if they wish.

Measures and Variables

The independent variable in this study is the amount of exercise the depressed participants engage in. The dependent variable in this study is the level of depression for which the Patient Health Questionnaire (PHQ-9) will be used. This instrument measures the severity of depression. On the PHQ-9, it asks questions about how one has been feeling for the past two weeks. For example, how often in the past two weeks has one been "feeling down, depressed or hopeless?". Then one picks from the options of: 1) Not at all 2) Several days 3) More than half the days 4) Nearly every day. The scores for each question added together then determines what level of depression one has. If there are participants in the population that already have signs or symptoms of the dependent variable around the first time point in the study, then those people must be excluded from the study because it will not be possible to assess whether they develop the outcome. Other important variables include the type of exercise or the intensity of exercise. Intensity of exercise could be divided into groups of low intensity, moderate intensity and/or high intensity.

Procedures

During the first time point, researchers will conduct face-to-face interviews with the randomly selected participants throughout the state. The interviews will collect data on how

much exercise the participants currently get and on how they have been feeling lately. The participants will also take the PHQ-9 during this time to see how depressed each participant is. Next, all the participants will be enrolled in exercise classes, while ensuring that they are getting more exercise than they had been previously. The researchers will follow up with the participants every other month over a period of 2 years. At the end of study, a final interview will be conducted with the participants and they will take the PHQ-9 again to assess whether or not exercise had an effect on treating their depression.

Analysis

This study includes a combination of qualitative and quantitative analysis. The face-to-face interviews contribute to qualitative analysis while the PHQ-9 is considered quantitative analysis. Bivariate analysis will be used when comparing the amount of exercise and the level of depression.

Discussion

Significance and Implications

Depression is a mental health problem that can lower one's quality of life and can take a toll on students' education. Students with depression may start to feel discouraged and think of education as useless and not take it seriously. If this study supports the hypothesis that exercise can help manage depression, then exercise can be used as a main treatment method.

Limitations

One disadvantage to a prospective longitudinal research design is the amount of time required. A lengthy period of time is needed to collect the data and to follow up with the participants. Another disadvantage is that longitudinal designs are very expensive. Plenty of money will be needed to conduct a longitudinal study design. One more disadvantage is the problem with attrition where there is a possibility of the loss to follow up with some participants because some may have dropped out or there is a possibility that a participant may pass away or cannot continue to participate in the study. Lastly, it is necessary to have a large sample size because the more participants there are, then the more likely it is that the findings will be meaningful.

Future Research

In future research, it would be interesting to take into consideration if the intensity of exercise has an effect on depression. Instead of focusing on the amount of exercise, researchers could study if the intensity of exercise is more effective. Future research could expand this study to a nationwide study and compare the Washington State findings with the nation findings. In the future, research could be done on a different population. For example, researchers could study whether exercise has an effect on depression in adults over the age of 60. Even by narrowing down the population to a very specific group, for example, researchers in the future could study whether exercise has an effect on depressed lawyers or businessmen.

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