Stress Reduction Through Meditation

Irnad Covic, Pyae Oo Khin, Christopher Sankowski, Matt Rogers & Avery Levine

Broome Community College

Abstract

This experiment tested the effect of meditation on an individual's stress level. Pre- and post-meditation heart rate measures were recorded and compared to evaluate the effect of meditation. Using the data from the EKG, we were able to compute the pre- and post-meditation heart rate measures and conclude that meditation does indeed have a positive effect on an individual's stress level. This is significant because now meditation can be promoted as a reliable means to stress reduction.

Stress Reduction Through Meditation

We believe that stress levels can be reduced through the practice of meditation. Regardless of age, stress and anxiety can be major factors in one's lifestyle. Since stress-related disorders are a contributing factor in a wide variety of illnesses, they have become recognized as our number one health problem, giving them much importance in research and lifestyle studies. It is important in this day and age to not overlook mental health problems and to try to combat them in positive and effective ways. (Zastrow, 1987). Mindfulness and meditation have been studied in relation to stress for many years, proving different results through different studies. A substantial amount of research has found that meditation is not only beneficial to mental health and the regulation of cognitive and emotional functioning, but it is also effective in eliminating perceived stress and related symptoms (Chu, 2010). Through studies, it has been shown that different types of mediation and various amounts of meditation do have an effect on stress levels. The number of days per week that one meditates and how accepting one is of their practice of meditation also relates to how low their stress levels will decrease (Schoormans & Nyklíček, 2011).

College students are a large part of the population that could benefit from mindfulness and meditation in combating stress. College counseling center directors have seen an increase in the intensity and severity of mental health problems among students and over the last five years have also found that more students are turning towards services for help (Burns, Lee, & Brown, 2011). An important developmental task for college students is learning to manage excess or unnecessary distress while actively engaging with healthy, age-appropriate challenges that promote growth. We believe that is possible that stress reduction can occur after practicing meditation as anxiety and stress treatment by as much as 50%. (Oman, Shapiro, Thoresen,

Plante, & Flinders, 2008). Success in a very important time in one's life is directly related to how much stress one undergoes, making meditation a useful practice for this age group especially.

Furthermore, we believe that different ethnicities benefit from meditation practices. Hispanics, Indians, and Latinos are some examples of ethnic groups that endure stress levels affected by mindfulness. In public schools, there are ethnic groups that are treated poorly and endure conflict throughout their years. This is a major factor that contributes to feelings of anxiety, depression, feelings of alienation, and other mental health symptoms. Transcendental Meditation practice has shown that these stress levels can be reduced in people of different ethnicities (Elder et al., 2011).

Moreover, meditation is a practice that requires much focus and attention so one can gain more control of their own focus and attention. We believe that the pure focus of meditation and focusing on the short amount of times that one is meditating will relieve stress levels on its own. All different types of people with different attention levels have practiced meditation, and they showed abilities to sustain focus on one visual field, whether it be long term or short term (Jensen, Vangkilde, Frokjaer, & Hasselbalch, 2012). Time spent in practice of formal mediation exercises has related to the extent of well-being of people of different attentions (Carmody & Baer, 2008). Attention, being a very important factor in lifestyle success, is a relevant way to reduce stress.

Meditation also can be used as an intervention during a time of stress. This is important because it shows how meditation should not only be practiced as a prevention tool, but as a way to relieve stress while undergoing it. Meditators compared to non-mediators can more easily stop and focus during a time of struggle. They can see the situation for what it truly is, take a step back and look at the situation, and then make a decision from there. Those who do not meditate

have a more difficult time processing what is going on and they let it affect them more negatively (Goleman, & Schwartz, 1976).

The connection between meditation, PMR, imagery mediation and breathing techniques for certain periods of time all relate back to the method of relaxation. Those who meditate tend to show decreased levels in general states of anxiety throughout time (Rausch, Gramling, & Auerbach, 2006). Whether the desired outcome is stress reduction, anxiety reduction, or even spiritual awakening, meditation has positive effects on one's life. After researching and dissecting results of many different articles relating to these topics, we believe that closed-eye deep-breathing meditation for 3 minutes will reduce one's stress level by 35 percent.

Method

Participant

We studied one volunteer for this experiment, a 33 year old male from a PSY110 class at Broome Community College.

Materials and Apparatus

In order for our group to complete this study successfully, we first used a desk and a chair as a place for our volunteer to sit down and relax. To measure his heart rate, we utilized the Biopac MP40 device with a built-in EKG monitor. To record the data we used a laptop provided to us. Lastly, we used an iPod with an audio track called *"Learn to Relax Tool Kit,"* along with a pair of headphones for our volunteer to use.

Procedure

Once seated, our volunteer was informed of the procedure of the experiment and verbal consent was obtained. After he agreed, we hooked him up to the Biopac MP40, by properly connecting each electrode to the specified place on his body. We then gave him headphones and

one minute to comfort himself and prepare for the exercise. While he was preparing, the Biopac MP40 was set to start recording the heart rate, and then the meditation track was prepared to begin playing on the iPod. Once he was ready, the meditation track began playing and the first measure of his heart rate was recorded by the Biopac MP40. While he was performing the meditation exercise, we observed him for any indication of discomfort. Once the meditation exercise was complete, we stopped the iPod and the second measure of his heart rate was recorded. We then detached him from the Biopac MP40 and took the headphones from him. Once free, a debriefing was performed on him to ensure no damage was caused from the experiment. We asked him how he was feeling and he ensured us that he was feeling good.

Results

Our volunteer's heart rate was recorded prior to conducting the experiment. This was done to provide a baseline comparison data of his initial heart rate versus his heart rate after the meditation experiment. These values were obtained by measuring the peak to peak beta waves of the EKG's monitoring data. The peak to peak values were an average of 30 individual heart beats prior to beginning the meditation exercise. The heart rate of our volunteer was averaged to be 73.4 beats per second before commencing the meditation exercise. The experimental data was a collection of peak to peak beta waves provided for a three minute time span. At the start of the experiment, the data values show an initial decrease in the heart rate of our volunteer. As the deep meditation exercises continued, the peak to peak values fluctuated but his heart rate continued to decrease from the initial heart rate obtained prior to the start of the experiment. We found the post-meditation heart rate by computing the average of the last 30 individual heart beats prior to the end of the meditation exercise, which was 72.3 beats per minute. In comparison, the results of our volunteer's initial heart rate opposed to the heart rate after the

meditation exercise, showed a percent difference of about 1.5%. These results show a decrease in heart rate as our participant conducted the closed-eye, deep-breathing meditation exercise.

Discussion

The experiment that we tested ended up rejecting the original hypothesis. In the original hypothesis, it was predicted that after three minutes of closed-eye, deep-breathing meditation, one's stress level would reduce by 35%. After measuring the heart rate of our volunteer at thirty separate points before and after meditation, we have concluded that the change in stress level was only about 1.5%. The heart rate before the meditation was 73.4 beats per second and the heart rate after meditation only dropped to 72.3 beats per second. Although, our hypothesis was not proved, our study did have some successes. For one, our volunteer reported feeling generally calm after the three minutes of meditation. He also reported that he believes this short meditation exercise would help him in a very stressful situation. The issues with this study were due to the volunteer. He is athletically conditioned, so his heart is less susceptible to experience a stress overload. Also, he claims to not have had a particular stressor before and during the time of the experiment, so his heart rate was not very high to begin with. He was fairly relaxed before beginning the study, which could be a potential reason that our hypothesis was not proven. If we were to do further investigations, it would most likely be more successful if we chose a volunteer who was naturally under a higher amount of stress.

In conclusion to our experiment, we feel that given another volunteer under higher levels of innate stress along with a more suitable setting would produce more predictable results. Regardless, our experiment did prove to be effective in reducing stress.

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