

INTRODUCTION

RQ: Can Mindfulness Training Be Used To Reduce pain?

Abuse of painkillers has become an epidemic and a leading cause of death in some parts of the United States. In order to curb the epidemic, the Centers of Disease Control and Prevention(CDC) has put forth new regulations on pain medication. Under the new guideline, doctors are to prescribe painkillers only after considering non-addictive pain relievers and prescribe the lowest effective dose possible. (Dowell, 2016)

To find a method of relieving pain with little to no side-effects, scientists have turned to meditation, acupuncture, assistive devices, tai chi and yoga. My project examines if mindfulness can be used to reduce pain and how effective it might be.

BACKGROUND AND SIGNIFICANCE

According to Ellen Langer, a professor of Psychology in Harvard University, mindfulness is a flexible state of mind in which we are actively engaged in the present and noticing our surroundings. (Langer, 2000) Mindfulness training, on its own or in alliance with cognitive therapy, can effectively impact recurrent depression, some anxiety problems, and chronic physical pain. (Smith, 2004) Recently, scientists have started to focus on its effects on relieving pain. If this proves to be truly effective, patients will be able to reduce or even stop their usage of chemical medication. Patients who suffer from chronic pain will no longer have to take high doses of drugs such as Morphine, Oxycodone and Fentanyl that may be addicting and suffer from side effects. (Congleton, 2015)



US. (NIDA)



(GINAD)



(GINAD)

Two students, Tonny Elmose Andersen and Henrik Bjarke Vægter, conducted a study in chronic non-malignant pain patients. They found that these patients experienced less pain after 13 weeks of mindfulness program. This study had 50 patients in a cognitive behavioral therapy program meditation (CBTm) and had 20 patients as control. The level of pain each patient experienced was recorded before and after the 13 week program and was then compared to see the changes. Andersen and Vægter found that after the 13 week mindfulness program, the patients who took part in the program responded that they experienced less severity of pain than before. (Andersen, 2016) Such experiment is possible because pain is a cognitive evaluation. As pain is an individual experience and tolerance varies from person to person, only the person feeling it can evaluate the pain.

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RESEARCH METHODOLOGIES

My study is a pure research that uses ordinal (qualitative) variables. The experiment will apply the treatment of mindfulness training to half of the volunteer subjects. My study examines if a mindfulness program app can help students manage temporary pain. I recruited 14 students from Henry M. Gunn High School using random and convenience sampling as my first batch and 10 college students in Korea as my second batch. Both groups of volunteers followed the same regimen as described below.

1. Subjects were initially asked to rate severity of the pain they felt while doing hamstring stretch as pictured on the right.



2. They were instructed to hold the stretch for 15 seconds and rate their pain from 0-10 according to the Wong-Baker faces pain rating scale as picture to the left.

3. Half of the students from both batches asked to complete a 30-day were mindfulness challenge while the control group received no mindfulness training.

The treatment group was instructed in mindfulness techniques using an app called wildflowers. The techniques included clearing one's mind by focusing on one's breathing, listening to the sound of nature provided in the app and focusing on an object and observing it. Each training session lasted from 5 minutes to 20 minutes, depending on what lesson each participant chose.



wildflowers app screen - Students had a variety of lessons they could choose from.

4. After increments of 10 days, volunteers checked in by completing the hamstring stretch for 15 seconds and rating their pain based on the same Wong-Baker scale.

5. The students who were in the mindfulness group were instructed to utilize mindfulness techniques to address their pain. There were a total of four data set collection over 30 days from each batch of volunteers.

DATA ANALYSIS AND RESULTS

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Works Cited:





As the graphs above indicate, there seems to be a downward sloping in the data overall. Whether mindfulness itself helped decrease the level of pain could not be proven by this research as there weren't enough data to draw conclusions. Generally, both treatment and control groups reported less pain over the course of the experiment. However, the pain levels of the control groups seem to fluctuate more than that of the experimental group, indicating that mindfulness could help with easing the process of lessening pain.

There were problems such as small sampling due to lack of volunteers, lack of time, and muscle soreness side effect that affected the data. I had originally planned on using 40 volunteers, but was only able to find 25 to participate. The experiment was done over the course of 30 days as it is scientifically proven that a person needs at least 21 days to form a habit. More reliable results could have been yielded if these three complications could have been addressed prior to data collection.

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