Name(s)

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Project Number

S0425

Project Title

The Reduction of Stress: A Novel Digital Intervention Method Utilizing Neural Oscillation Analysis & Scanning Techniques

Abstract

Objectives

The World Health Organization (WHO) finds that 110 million people die every year across the world as a direct result of STRESS. That is seven people in every 2 seconds. Thus, the WHO has determined that STRESS is a worldwide health epidemic for the 21st century. This project aims to develop methods to help people to effectively manage the stress. This project is split into two phases:
Phase 1: Determining and analyzing the global rate of Stress in students and working adults through two survey instruments. Phase 2: Conduct an experiment to find the best method to reduce stress.

Methods

Two Digital Survey Instruments were created to conduct a global study on stress level. Survey conducted for a period of 30 days. Subjects were selected using Random Sampling Method from 14 countries. IBM-SPSS and R Programming were used for deep level data analysis. Android Development Studio was used to develop relaxation apps. In phase 2, I conducted an experiment for a period 35 days with 20 subjects ((10 experimental and 10 control). Additional 5 subjects on Trial 1&2.

Results

Phase 1:The stress levels in both students and working adults are at critically high level. The overall global student s stress level is at 59.34% and working adult is at 40.72%. Students face significantly ($p < 0.05$) more stress than working adults. US Female students have the highest stress levels (72%) and Indian female students have the lowest stress levels (39%), US female stress levels are significantly ($p < 0.05$) higher than their counterparts in Malaysia and India. In Phase 2, the stress was measured in two domains and in three ways: The Domain of Behavior/Psychology (Behavioral Improvement Assessment and Perceived Stress Scale) and The Domain of Physiology (Average Heart Rate). The experimental group has a significant improvement ($p < 0.05$) in all these measurements compare the control group.

Conclusions

The results from the Behavioral Improvement Assessment show that the longer the subjects practiced the Body Scanning Relaxation Exercise (experimental group) over the period of 35 days, the more their stress reduced compare to control group. There is a significant ($p < 0.05$) positive difference between Body Scanning Relaxation Exercise and Control Group.In all three methods of measuring Stress, Body Scanning Relaxation led to the most significant ($p < 0.05$) stress reduction. Hypothesis was supported by the data collected in Phase 2. When subjects practiced the internal intervention method, they were able to cope with their stress better.

Summary Statement

A global study on stress level among students and Adults. In Phase 2, I conducted an experiment to identify the best intervention method to reduce stress.

Help Received

My Biology teacher reviewed the research methods. Worked with behavioral experts to review the questionnaires and research methods.