ANALYSIS OF CORRELATION BETWEEN BODY MASS INDEX (BMI) AND BRAINWAVE USING EEG FOR DELTA AND THETA WAVE

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ABSTRACT

This research is mainly analyzing the correlation between Body Mass Index (BMI) and brainwave using EEG focusing only on Theta and Delta wave. Brainwave activity is measured by the number of waves or electrical frequencies that occur in a given unit of time. BMI is a measurement of body fat based on height and weight, thus, categorized into underweight, ideal weight, and overweight. Graphs were plotted and Pearson's correlation analysis was used to demonstrate the correlation between BMI and brainwave by using Microsoft Excel and SPSS software. This research also investigates the relationship between stress and BMI due to unbalance brainwave pattern. It was observed that there is a correlation on over weight students as compared to others. Another finding is that stress is related for all categories as clearly shown in this research.

Keywords: Delta, Theta, Body Mass Index (BMI), Electroencephalography (EEG)

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CHAPTER 1

INTRODUCTION

1.0   Introduction

Human body consists of brain which is important part like a processor of computer. This chapter will briefly explain on the background, significance, objective, and scope of work and also the thesis organization for this research.

1.1   Background of Study

The brain controls our body, receives information, analyzes information and stores information (our memories). The brain will produce a brainwave signal which can be captured by using EEG. EEG is the main method to monitor the activity of the brain. Brainwave will appear in four different types and frequency and it relate to the characteristics of the person. Body Mass Index (BMI) is a single number which expresses a relationship between height, body surface area, and body weight. It is very useful because it correlates very closely to the body fat percentage. Stress refers to anything that disturbs an individual's physical, mental, or emotional equilibrium. Stress can affect both body and mind. This study will attempt to correlate all these specifically BMI, brainwave and stress.

1.2   Significance of Study

This research was done to investigate the correlation between BMI and brainwave and also stress. Hence, by comparing questionnaire and research's results a conclusion can be made, whether both findings have the same results. It helps students to realize whether their BMI related to stress or not. There are many advantages regarding to this research because it can be used to evaluate the health condition of a person and also the behavior that can guide to a better life.