

## Documents

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**The Response of EEG Signal on Brain Relaxation Meditation Using Different Type of Zikr**

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**Abstract**

Depression and stress are increasingly prevalent in today's society, owing to people's hectic, competitive, and demanding lifestyles. These illnesses had become very common, particularly among young and middle-aged people, and suicidal ideation had been identified as one of the leading causes of death by the World Health Organization (WHO). Nature sound (sound of downpours or beach) has been linked to depression and anxiety in neurology research, and it has been shown to be an alternative to alleviate anxiety. The electroencephalogram (EEG) waveform has been discovered to possess the potential in identifying information from the brain signal as well as data from the past via Bluetooth communication. The waveform use in the study are the result of a few experiments. In this study, EEG data were collected from eight subjects, four males and four females, in between the age of 20 to 30 years old and in good health, using the BrainLink device. The participants were asked to listen to two playlists of zikr, Allah, Ya Allah, and SubhanAllah, during the experiments. To smooth the signal, the Butterworth filter was used. Later, the extracted features were Alpha, Beta, and Delta waves, which were segmented based on the filtered signal. To complete the decision-making stage, the average value of amplitude differences and the p-value test were performed in the final phase. Based on the results of the experiments, it is clear that zikr is dominant in Delta wave. In terms of data hypothesis analysis, the results of both experiment were differentiated to determine which brain signal was dominant, and p-value testing was performed. Furthermore, this research is an alternative to current methods because it suggest that zikr has the tendency to alter a person's brain state to be either in a relaxed or calm mode regardless of the type of zikr recitation. As an outcome, the study recommends the relationship of the reaction of EEG signal on brain relaxation with different types of zikr in order to facilitate stress and anxiety patients to achieve relax or calm condition. © 2021 Institute of Physics Publishing. All rights reserved.

**Index Keywords**

Behavioral research, Butterworth filters, Decision making, Signal processing; Bluetooth communications, Brain data, Brain signals, Causes of death, Delta waves, Electroencephalogram signals, Signal-on, Suicidal ideation, Waveforms, World Health Organization; Electroencephalography

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