Sad Bin Sadain Mridha

Is Depression among adults and teens creating a generation who are crippled with their senses more than they are supposed to or is it frowned upon? Maybe this review will clear some of the Myths.

Depression is a common mental illness that affects millions of people worldwide. The traditional method for diagnosing depression is through clinical interviews and questionnaires, but this can be subjective and time-consuming.

EEG, or electroencephalography, is a non-invasive method for recording electrical activity in the brain. Researchers are increasingly using EEG to identify biomarkers for depression.

The review found some EEG biomarkers for depression such as Alpha asymmetry in the frontal and parietal-occipital cortex, Functional connectivity between different brain regions. This paper used machine learning algorithm for detecting mental health problems are support vector machines and convolutional neural networks. CNNS can be used for signal processing for the brain and can create a good model to detect the brain activities which can then detect the exact part of brain which is creating problems. The dataset has to be a large dataset to create a model that can predict accurately.

There are some limitations of EEG signals dataset they have to be large in terms of values, need to develop more robust machine learning algorithms, understand the underlying neural mechanisms of depression.

The study found that negative stimuli are more effective in identifying depression through EEG signals. Moreover, the researchers observed that Neural Connectivity Analysis and Brain Topological Mapping hold great potential for discovering depression biomarkers. They identified distinct regions in the right-side hemisphere and frontal and parietal-occipital cortex for detecting depression using EEG signals. To achieve this, various signal processing and machine learning approaches were employed.

Among the signal processing techniques, Independent Component Analysis (ICA) was commonly used to remove physiological and non-physiological artifacts. The article provides a comprehensive overview of the research on EEG-based depression detection.

The human brain is formed by two cerebral hemispheres the right and the left so our brain can detect our every movement as well as our analytical thinking. We can lie to ourselves but we cannot lie to our brain as it is the most complicated thing in our health. So, we must control our brain. The brain can act as a computer which has signals coming from the brain to other parts of the body if we can pinpoint the exact location of the brain activity which is affected by when we are depressed it can be beneficial for the people.

The authors did a good job of summarizing the findings of the different studies and identifying the limitations of the research. The article is well-written and easy to follow.

I think this is a valuable contribution to the literature on EEG-based depression detection. The authors provide a clear and concise overview of the research in this area, and they identify some important directions for future research.

The authors conclude that EEG-based depression detection is a promising area of research, but more work is needed to develop reliable and clinically-validated methods. The authors believe that their study opens up opportunities for further exploration of EEG as a diagnostic tool by analyzing brain functional connectivity. By focusing on clinical interventions, this research may contribute to improving the understanding and management of depression.

In summary, this systematic review highlights the importance of EEG biomarkers in diagnosing depression and sheds light on the potential of specific brain regions and advanced machine learning techniques for effective classification. It encourages more research in this area to enhance diagnostic methods and ultimately aid in clinical interventions for individuals suffering from depression.

This review underscores the importance of EEG-based depression biomarkers and highlights the potential benefits of exploring specific brain regions and advanced machine learning algorithms in identifying and diagnosing depression more effectively. It calls for further research and development in this area to advance diagnostic methods and ultimately contribute to better clinical interventions for individuals suffering from depression.

The development of multimodal depression detection methods. EEG is a promising biomarker for depression, The development of EEG-based depression detection methods that can be used in real-world settings. Most of the studies reviewed by the authors used EEG data that was collected in laboratory settings.

The authors conclude that the research on EEG-based depression detection is still in its early stages, but it is a promising area of research with the potential to revolutionize the way that depression is diagnosed and treated.