

The Complexity Of The Human Brain And Mental Illnesses

Posted on September 23, 2019

Complexity of the Human Brain

The human brain argumentatively is the human brain; it remains relatively the same and is not subject to sudden leaps in evolution. The human brain, its physical scaffolding and its relationship with the human mind is a complex phenomenon. The latest advancements in complex systems theory have offered new insights into the understanding of the human brain. Developments in mathematics, statistical physics, social sciences, and the computer sciences derive the complex network theory (Bassett, 2011). This theory is especially used to study the human brain. Significantly, the graphical characteristics of the human brain networks can be directly connected to the system function by means of correlation with cognitive and behavioural variables involving IQ, the accuracy of memory, and verbal fluency.

Brain Networks Metabolism and Mental Illness

Altered functions are interrelated with the fundamental configuration in the clinical conditions as varied as Alzheimer's disease and schizophrenia. The metabolic characteristics of the human brain can be mapped to the organization of the network, which offers or suggests energetic or enthusiastic limitations on the fundamental construction. The brain's complex temporal and spatial structure explains the cellular, neuronal, and molecular phenomena, which, when combined, establishes the biological and physical origin of cognizance. Advancements in the field of computer science have helped in the investigation of the human brain. Functional imaging techniques like functional MRI and positron emission tomography are evident and valuable procedures for investigating the functions of the human brain. Normally, a stimulus or a task is given, and the alterations in the activity of the brain in reaction to the stimulus are documented (Fox, 2005).

Psychosocial Problems and Criminal Behaviour

People showing behaviours that are offending and depict criminality often possess a long history of psychosocial problems, such as issues in maintaining long-term relationships, interpersonal difficulties with family members, issues in the maintenance of stress and temper, psychological and emotional disorders, lack of vocational skills and education, and difficulties in finding beneficial jobs (Belenko, 1998). All these problems have an in-depth connection with anxiety, low self-esteem, increased expectations, and depression. According to Morse (2005), "Brains do not commit crimes; [people](#)

commit crimes.” He suggests that many findings regarding the functionality of the human brain pave the way for moral or legal conclusions. For instance, *Roper v. Simmons* favoured the elimination of the death penalty for youngsters who were murdered during their teenage. He took this position as he believed that there’s a lack of the whole myelination of the cortical neurons of the adolescent brain. Human brains are often blamed for the offending behaviours.

Neurobiology Trauma and Rationality

The capacity of an agent for sensibility and rationality can fade by means of erroneous neurotransmitters, trauma, psychological stress, or other various reasons. Scientists use different techniques to explain why people show criminal behaviours and how to deal with them. They apply biochemical or molecular procedures to examine particular proteins or genes found in the neurons. In the past, scientists could only study the brain after the death of the person. But now, due to advanced imaging techniques, the study of the brain’s activity in living humans and animals has been made easy.

Diagnosis and Treatment of Mental Disorders

The majority of the mental disorders and mental illnesses leading to criminal behaviour and activities do not have a particular treatment. However, to reduce the indications and symptoms of the illness and enable the person to function normally, a qualified mental health specialist needs to be seen first. After the discussion regarding the symptoms and the history, a physical examination is required for the determination of other health problems. This is important since some psychological problems can be related to physical illness. For instance, emotional swings can be the result of heart disease or one of the side effects of a particular medication. After all these steps, a treatment plan is developed, which includes both medications and psychotherapy. This depends on the kind of the disorder and its seriousness.

Medication Psychotherapy and Ongoing Monitoring

Medicines are the first step towards the treatment of any illness or disorder. During any medication, health conditions are regularly examined to check for any harmful or negative effects of the particular medicine. If any undesirable effect is observed, the medication is changed. The treatment done through psychotherapy has been proven to be very helpful and efficient in the case of people suffering from deviant or criminal behaviours. This method of treatment comprises a professional discussing everything with the patient. This discussion is regarding all the problems the patient is facing and also his or her feelings and emotions. It helps the patients alter their views, thoughts, and patterns of behaviours, comprehend how their experiences of the past impact their present actions and behaviours, sort out solutions for other issues and problems and learn skills of self-management.

It is not a one-time event but can go from a few visits to a few years, depending on the severity and the extent of improvement. Both medications and psychotherapy aid persons with severe illnesses and disorders. Medicines relieve the signs and the symptoms while psychotherapy treatment aids the persons to cope with their disorders (ncbi.nlm.nih.gov).

Conclusion on Brain Function and Behaviour

Hence, the human brain remains the same, but its different components are what cause changes in human behaviours. Any external situation or factors can lead to a change in the functionality of the neurons and the messages they convey to the brain and all parts of the body. These alterations will ultimately lead to disrupted actions and behaviours without any change in the physical structure of the human brain.

References

(US), N. I. (1970, January 01). Information about Mental Illness and the Brain. Retrieved April 09, 2018, from <https://www.ncbi.nlm.nih.gov/books/NBK20369/>

Bassett, D. S., & Gazzaniga, M. S. (2011). Understanding complexity in the human brain. *Trends in cognitive sciences*, 15(5), 200-209.

Belenko, S., & Peugh, J. (1998). Fighting crime by treating substance abuse. *Issues in Science and Technology*, 15(1), 53-60.

Fox, M. D., Snyder, A. Z., Vincent, J. L., Corbetta, M., Van Essen, D. C., & Raichle, M. E. (2005). The human brain is intrinsically organized into dynamic, anticorrelated functional networks. *Proceedings of the National Academy of Sciences of the United States of America*, 102(27), 9673-9678.

Morse, S. J. (2005). Brain overclaim syndrome and criminal responsibility: A diagnostic note. *Ohio St. J. Crim. L.*, 3, 397.