

Effects of Neurological Impairment on Problem Solving Case Study

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There are a number of neurological disorders that have various causes. Some of them may be as a result of accidents leading to brain injury, genetics or even lifestyle. Examples of neurological disorders include stroke, brain tumors and migraines among others. These diseases have several effects and are fatal if not treated on time (Soleman & Fawcett, 2013). This paper aims at understanding some of the functions of the brain, neurogenesis and the impacts of neurological disorders on problem solving skill in human beings.

Brain structure and function

The human brain is divided into the forebrain, hindbrain and the midbrain. The forebrain also known as the cerebrum controls how people think and the way they act too. This part of the brain is responsible for critical analysis and problem solving. The hindbrain is mainly used for coordination and facilitates movement. The midbrain on the other hand is responsible for interpreting audio messages and visualizing images transmitted from the ears and the eyes respectively.

Neurogenesis

The human brain keeps on developing even after birth. There are neurons and cells that keep growing throughout the life of human beings. This process is known as neurogenesis. Some of neurological disorders result from cancerous cells whose treatment involve chemotherapy. Cancer treatment is meant to prevent the multiplication of infected cells in the body. This treatment however stops the division of all cells regardless of whether they are malignant or not. This in turn interferes with adult neurogenesis process.

Plasticity

This refers to a synaptic process in the brain that allows one to remember things and adapting to new situations. The learning process of people is greatly controlled by the synaptic plasticity process. Patients with brain tumors for example exhibit impaired synaptic plasticity (Soleman & Fawcett, 2013). This can be best explained by the fact that neurological disorders normally affect the synthesis of useful cells such as protein podoplanin that are used for plasticity functions of the central nervous system.

Effects of neurological disorders on problem solving

Any injury in the brain can result to that part of the brain not efficiently performing its tasks. Neurological disorders such as stroke affects certain brain lobes and completely paralyse it. This greatly affects problem solving. The affected person is not able to think critically and adjust to situations. The brain is unable to tell right from wrong and therefore reasoning with people and coming up with a working conclusion is impossible. When a person is in pain, it is not possible for them to concentrate on other pressing issues. Diseases that affect the central nervous system usually interfere with the general normal functioning on an individual including reasoning. Problem solving is a skill that needs sober minds and a lot of concentration. A person is expected to analyze the situation critically, compare options and finally settle for the most appropriate one. Patients with brain disorders lose the ability to do this (Flöel, 2014)). These diseases are normally complex in nature and so is their treatment.

There are cases where neurosurgery becomes a necessity. The surgery if not conducted so well may have serious side effects. Some patients may develop swelling in the brain leading to much further damage. In case a part of the cerebrum is affected during the treatment process, the person's ability to act wisely is consequently altered interfering with their problem solving skills. The same applies for those who undergo chemotherapy. The process greatly affects their

concentration and memory. Disorders such as epilepsy are usually characterized by seizure attacks. The victim is unable to concentrate for long periods or even function properly. Problem solving is a process. It requires ample time and participation of all parties involved. An epileptic person may not be able to concentrate throughout the process. The seizures interfere with their memory forcing them to start all over again after each attack (Rathouz, Zhao & Hermann, 2014). For this reason, victims may not be able to take part in problem solving. Patients with neurological disorders may also have difficulties in expressing themselves. Their speech is often affected making it difficult for them to communicate with the rest of the world. Brain disorders may lead to abnormality. Abnormal people are not sane and therefore are incapable of making sound decisions. They cannot work as a team and are unable to reason or share ideas. Such a condition completely limits problem solving.

Conclusion

Problem solving will require people to research, critically analyze situations, weigh options and come up with the most suitable course of action in finding solutions to a problem. This process is very involving and requires people of sound mind and good health. Neurological disorders have great effects on victims. The diseases affect the way an individual reasons as they interfere with normal brain functioning. Their treatment such as radiology and surgery may also negatively affect the brain consequently affecting their ability to solve problems. It is important that victims are not included in this important process until they are fully recovered and can reason without disruptions.

References

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