



The impact of seizures on mental health and quality of life: A review

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ABSTRACT

A seizure is a sudden uncontrollable outburst of electronic movement in the brain. It can also be understood as the abnormal excessive motion in the brain. These disturbances often result into being the main cause behind changes in emotions, behaviours, losing consciousness and leading to hormonal and physical imbalance. It is one of those neurological related disorder that can happen in to individuals at any point of time. It is any disorder cannot be cured by just taking medication, it need special treatments and support of your loved ones. Commonly, people who have this are at a risk of falling downward and hurting themselves. In many cases the seizures are uncontrollable and might lead to serious medical conditions This paper covers an overview of the potential reasons , the mental and physical problems that people experience and exiting solutions for seizures in humans. The study is concluded with the proposal of a design- centric framework that could help the individuals feel safe even while stepping out of their comfort zones

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I. INTRODUCTION

Seizures are one of the most common neurological disease in the world, but still people are unaware about this condition. 1 in every 10 people is believed to have seizure once in their lifetime. It is observed that 80 percent of the seizure patients belong to the developing countries all over the globe, and still does not have direct access to any treatment. Seizure is one of the disorder which lead having an emotional as well as a physical impact on the persons body, often resulting into bruising, cuts, depression, anxiety, etc. Many individuals feels isolated and suffered from serious category of depression. It is something that influences the quality of life for many, as they can believe threading for some and can be a sense of fear and anxiety for others. One of the major problems that individuals face is that it is an unpredictable disorder. It can happen to you everywhere, at any point of time and in majority of cases for example while walking on a busy road or while driving, you just cannot control it.

It affects the person's ability to live a normal life like working studying or engaging with people around. People are frightened to step out of their homes and their comfort zones and challenge themselves since seizures are often seen as a social stigma that leads to comparison, discrimination, and negativity which eventually further leads to psychological issues in any human being.

Despite all of these challenges, there are successful assistance and treatments available for the people that helps the person to control and balance their life It even helps the him or her to understand their symptoms, triggers and even how with proper care and attention people can live a normal life.

II. LITERATURE REVIEW

Any living being which has a brain, can experience seizures, it is very commonly observed in our beloved pet- cats and dogs. Different type of seizure can depict dissimilar symptoms, depending on the category of seizure and brain's part that has been affected during the attack.

It is not necessary that all seizures lead to epilepsy or any other neurological disease. If is advised that if the person is dealing with seizures for more than one time, he or she can consult an emergency doctor and get treated. People with seizure are majorly divided into three categories :

2.1 CATEGORIES

1. Seizures that are not controllable or treated
2. Seizures that can be controlled
3. Seizures that have been or are being treated

After determining in which category does the person fall, doctors suggest the best solution and medications for them. It is one of the brain disorder which in most cases impacts the patients life personally and professionally making him or her suffer emotionally. Having a seizure can be a very frightening experience, as it makes the person feel helpless and hopeless. Along with that, it is a very terrifying event for anyone who's watching it for the first time. Even now, many people are still unaware about the basic actions and the first aid that can be provided to the person experiencing it. Around 50 million people still suffer from this disorder worldwide, making it the fourth most common neurological disease in humans. It is something can last anywhere starting from a few seconds to more than a minute. If the seizure lasts more than 3 minutes, the patients loved ones are suggested to rush the patient to the emergency department and seek medical attention. These seizures are generally categories into two main categories, and people are evaluated and examined after discovering which kind of seizure he or she is experiencing. A person generally suffers one type of seizure, but in many cases it is seen that the person even has two or more kind of seizures. These are examined on the basis of symptom that the individual might have gone through or is exhibiting. The first thing that is notices is that in which hemisphere or side of the brain the seizures is occurring. It is categorised as :

2.2. MAJOR TYPES

- A. Generalised
- B. Focal or Partial

2.3. DIFFERENCE IN FOCAL AND GENERALISED SEIZURE

There is a kind of categorization on the basis on which the medical team diagnosis the type of seizures the individual is facing, the classes are:

- I. Hemisphere or part of the brain

Generalized seizures are also known as primary seizures are the ones that originates or starts in both the hemispheres of the brain. Whereas, the focal or partial seizure are the ones that originates or begins in an area that covers only one hemisphere of the brain

If the seizures begins at one hemisphere or a specific part of the brain and is the shifted or converted to both the sides or hemisphere of the brain, this condition is known as focal to bilateral or secondary generalised seizures as it is involved both the sides and kinds of seizure at one go.

- II. Awareness and consciousness

One of the major factors considered while examining the patient is whether the person was aware and conscious or not at the time of attack or not . In generalised seizures, it is believed it will definitely affect the awareness of the patient. Majorly the awareness comparison only is applicable to the focal seizures as it can of two kinds as following :

- a. Aware : that is also referred as simple partial
- b. Unaware : that is also referred as the complex partial

The medical team of doctors examines the person on the basis of his or her awareness, consciousness and the symptoms that the person is showing. This assists them to know which part of the brain is being affected and what the patient should expect next.

III. Motor or non-motor

By motor we refer to any type of kind of movement during a seizure. If we talk about generalised seizure it is commonly observed that it involves either stiffening of the body or continuous jerking. Similarly if we talk about the movement in the focal seizures, it can involve jerking, twitching, fits and even stiffness. Other than that, majorly focal seizures also the automatic motion in the body such a shaking in hands or legs, licking your lips. Rubbing your hands In this, firstly only one area of the muscles might be affected but later it can be spread into areas of the body for example : if the seizures begins with the person rubbing his or her hand, they can experience shaking in their elbow and shoulder regions as well. This phenomenon is known as Jacksonian march. This is a result of the abnormal movements happening in one part of the brain that trying and moving to another part of the brain.

In the generalized category if we talk the patient experiencing the non-motor seizure, it is believed to be and called an absent seizure In this, the individuals might encounter having changes in their awareness as well as are commonly seen staring at something. While in the focal non-motor seizure, the person might experience other symptoms like altered emotions, thoughts sensations and even experiences. This is known as an aura where the person is experiencing a non-motor seizure but does not know it.

III. CAUSES OF SEIZURES

There are various causes which provoke seizures in a person. The different reasons can be as followed:

1. Epilepsy

- It is a disorder related to the brain, having which makes people more susceptible for having seizures. The cause of having this disorder is different for everybody. For most, it is a life-long condition, that causes repeated seizures and discomfort, making it the most common reason for having seizures

2. Genetic disorder

- It is a disorder caused when the normal sequence of DNA is followed in the human body. Seizures are generally caused due to the combination of the gene. Sometimes these genetics run in the family history and can be caused by the time of birth

3. Head injuries

- Seizures can be caused due to a traumatic head or brain injury. It is not necessary to have seizures just after the accident; it is possible to suffer from seizures even after months from the accident. Not every person who has had an head or brain injury will suffer from seizures. It solely depends on the condition and the part of the brain that has been injured

- Early post-traumatic seizures are the ones that occur within the first week after any brain injury. It is seen if a person has a seizure within the first week of the injury, he or she has chances to get another seizure months or even years later. 25 percent of the patients suffer from this condition

- Late post-traumatic seizures are when the patient experiences a seizure after the first 7 days or a week from the injury. The ones who have this, is believed to have another seizure in a week or month. 80 percent of the patients suffer from this.

4. Metabolic imbalance

- Having internal issue in the body such as low or high blood sugar levels, changes in sodium level, changes in level of iron, etc can result into a seizure. It also only applicable if the levels are really low or high, or if the person suffered from an injury and then having a metabolic imbalance

5. Toxins

- Consuming in a high amount of toxins in the body such as having an overdose of alcohol , drugs and even the medications that might be prescribed from a doctor

6. Fever

- Having an extremely high fever in children that have an history of brain disorder can result into them having seizures

7. Infections

- Having an infection that can effects the nervous system. Common example of having seizures from an

infection is having meningitis

8. Tumors and strokes

- Strokes are the second most common reason for any person to have seizures. Strokes might even lead to brain injuries which further leads to having changes and movements in the brain's nervous system resulting into a seizure

IV. SYMPTOMS

Few symptoms that the individual undergoes at the time if the seizure attack can as follows :

- I. Sudden feeling of dizziness or feeling extremely tired
- II. Being unresponsive and staring at one place for a long time
- III. Sudden shaking in hands and legs
- IV. Strange and sudden movements in body such as stiffening in arms, head, legs or twitching in eyes
- V. Not being able to speak or understand anything

EPILEPSY COMMON SYMPTOMS



Loss of consciousness



Weakness



Anxiety



Staring



Contraction and jerking of muscles



Confused speech

<https://www.womenshealthmag.com/uk/health/conditions/a36462364/epilepsy-mental-health/>

- VI. Being unaware of the situation and losing consciousness
- VII. Having a sense of strange taste , smell , sound or seeing an strange visual image
- VIII. Drooling or biting your lips
- IX. Not being able to balance yourself
- X. Sudden feeling of anxiety, fear and even deja vu
- XI. Having a sense of temporary confusion
- XII. Having problems or finding it hard to breathe
- XIII. Suffering from hallucinations or seeing things
- XIV. Tingling feeling all over the body
- XV. Feeling numbness in legs and arms
- XVI. Having dilated pupils and very high heart rate
- XVII. Feeling nausea and experiencing sudden sweating

V. POTENTIAL TREATMENTS

Seizures are considered to be a very hard disorder to be treated. For many, treatments can help in managing, reducing and controlling the seizure. There are cases where people have stopped having any seizure at all. All these treatments are given the patient when the doctor has analysed and diagnosed the patient. It is not advised to take any kind of medication which has not been prescribed by the doctor.

The treatments include :

A. Taking medications

- There are few medicines which is specifically prescribed by the doctor, which helps in controlling the seizures in patient.
- It often results in the user having very much control over their seizures or rarely experiencing any seizures
- One of the common medicine is anti-epileptic drugs which should be taken as told by the doctor
- The main reason for medications is to find the best match for the patient condition, that will have the least side effects on them
- It is a complex process and might require the person to take multiple medications to find the best one that suits him or her

B. Dietary therapy

- Often the ketogenic diet is suggested to have an control over the patient seizures
- Proper diet which includes fruits, vegetable and all the important vitamins and nutrients which can help with ingesting the heavy dosage and while managing the body overall.

C. Surgery

- It is used to remove the part of the brain which is resulting into seizures
- Surgery is only advised and performed if the medication is not working and if the test results show that a small part of the brain and it can be hearted or removed without damaging any other part of the brain
- There are high chances that surgery might help treat and remove seizures from the patients life

D. Electrical stimulation

- If the surgery is not an option, stimulation is advised
- Electrical stimulation along with proper intake of medicines helps in reducing and controlling the seizures
- In this electricity is send into the body that then helps to prevent seizures

VI. SOLUTIONS

Few devices that will help to safeguard the user and manage seizures are:

6.1 seizure monitor

- It is is monitor that helps to notify the user's patients loved ones when he or she is having a seizure
- It is a wearable device which works as an seizure alarm when seizure occurs
- They are useful to keep an eye specially on your children
- Although the device doesn't help in reducing or saving during the attack, it helps to alert the family



<https://www.mobihealthnews.com/news/emea/connected-aramband-detects-85-percent-nighttime-epileptic-seizures-new-trial>

6.2 Epilert Bracelet

- It is an epilepsy and seizure detection device that notifies and helps in altering the user as well as their loved ones
- It is a smart waterproof medical watch which monitors and detects triggers and seizures of the users while being connected to the Bluetooth
- During the time of seizure, an alert along with the live location of the patient is send to thecaregivers



<https://www.indiegogo.com/projects/epilert-for-epilepsy-monitoring#/>

6.3. Dialog

- It is sticker device that easily sticks onto the user's body and helps to detect seizures and alert the family members as well as make a note of the seizure's date and duration
- The sensor is connected to a application that makes it easier to access and store all the data
- This device is made to empower the users and get the users with the help they need as soon aspossible
- Since it just sticks onto the skin, it is more convenient for anyone to wear it



<https://www.wired.com/2014/03/3-insights-wearable-design-smart-concept-epileptics/>

VII. CONCLUSION

Seizure being one of the most uncertain disorder, creates a feeling of panic and agitation in the minds of the person. People often mistake this disorder and treated the individual with bias and unfair means. Having a medical condition should not stop anyone from living a normal life and living their dream. In many cases people feel shy or self-conscious while wearing a safety guard. A product that can safeguard the person when he or she steps out of their room or home , and make then feel a sense of safety and comfort. It should be such that, the person is not embarrassed or ashamed of wearing any kind of safety guard. Adding to that, if the persons surrounding makes him or her feel safe and they realise that people are not treating a them differently is plus point. Increasing awareness about this disorder is necessary. This is something that should be taught in schools, on how to prevent as well as help a person who is suffering from a seizure. A brief study on the kind of symptoms helps us to identify and keep an eye in our surroundings if any person is in need of help. Finally, a concise regulations and the basic knowledge about seizures should be laid out by the government in order to educate people to help everybody in their surroundings

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