School of Engineering and Applied Science (SEAS), Ahmedabad University

BTech(ICT) Semester IV: Probability and Random Process (MAT202)

Special Assignment-Abstract

Project Area - Biology
group ID : SB4
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1 Introduction

Schizophrenia is a chronic mental disorder. Many symptoms like Anger (Extreme), Mental confusion, Disorganised behaviour, unexpected memory loss leads to disease named Schizophrenia. It is almost non-curable disease. In some case it can be improve conditions with help of happy environment, Psychotherapy and by some very expensive treatments. Only 1% of population is affected by this diseases. Mostly it occurs due to psychosocial factors, problems during birth, malnutrition before birth and tragic(obsessive) events caused by the enivoronmental factors faced by people.

2 Base articles and motivation

Motivation behind selecting this topic:

How will we view schizophrenia in 2030?[1] Schizophrenia today is a chronic, frequently disabling mental disorder that affects about one per cent of the world's population. After a century of studying schizophrenia, the cause of the disorder still remains unknown.[2]Therefore there is an essential need for a probabilistic model which could the predict the likeliness of a person having this disorder.[3]

3 Overview

The basic idea what we would like to do is gather all the statistical data about the likeliness of causes of schizophrenia and their relative frequency approach on calculating the probability of getting schizophrenia.For this, we would use conditional probability(Bayes Theorem) and joint probability as we would have prior information of all likely causes. We would design a mathematical model which would do the statistical analysis about symptoms and causes and output the probability of catching schizophrenia.

4 REFERENCES

[1]. Marco Procopio(2005): *Does god play dice with schizophrenia? A probabilistic model for the understanding of causation in mental illness*

[2]. Myung JaePaeka, Ung GuKangI(2012): *How many genes are involved in schizophrenia?* A simple simulation

[3]. Ying Guo, DuBois Bowman and Clinton Kilts(2008:*Predicting the Brain Response to Treatment Using a Bayesian Hierarchical Model With Application to a Study of Schizophrenia*