

**SCHIZOPHRENIA DISORDER****Vikas Gupta\*, Abhishek Dubey, Rahul Chaurasiya and Mandar Chavan**

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**➤ ABSTRACT**

Abstract: Schizophrenia is a chronic and severe mental disorder that affects person's thoughts, feelings, and behaviour. People with schizophrenia seem like they have lost contact with reality. Although schizophrenia is less common as other mental illnesses, the symptoms can be extremely disabling. Schizophrenia stands for a long-lasting state of mental uncertainty that may bring to an end the relation among behavior, thought, and emotion; that is, it may lead to unreliable perception, not suitable actions and feelings, and a sense of mental

fragmentation. Indeed, its diagnosis is done over a large period of time; continuous signs of the disturbance persist for at least 6 (six) months. Once detected, the psychiatrist diagnosis is made through the clinical interview and a series of psychic tests, addressed mainly to avoid the diagnosis of other mental states or diseases. Undeniably, the main problem with identifying schizophrenia is the difficulty to distinguish its symptoms from those associated to different untidiness or roles. Therefore, this work will focus on the development of a diagnostic support system, in terms of its knowledge representation and reasoning procedures, based on a blended of Logic Programming and Artificial Neural Networks approaches to computing, taking advantage of a novel approach to knowledge representation and reasoning, which aims to solve the problems associated in the handling (i.e., to stand for and reason) of defective information.<sup>[1,2,12]</sup>

➤ **KEYWORDS:** Psychosocial Intervention Substance Abuse Disorder Quick Reference Australian Guideline Schizophrenia Treatment.<sup>[3]</sup>

## Schizophrenia



### ➤ INTRODUCTION

Schizophrenia is a long-term mental health condition that causes a range of different psychological symptoms. These include.

- hallucinations - hearing or seeing things that do not exist
- delusions - unusual beliefs that are not based on reality and often contradict the evidence
- muddled thoughts based on the hallucinations or delusions
- changes in behaviour

Doctors describe schizophrenia as a psychotic illness. This means that sometimes a person may not be able to distinguish their own thoughts and ideas from reality.

The exact cause of schizophrenia is unknown. However, most experts believe that the condition is caused by a combination of genetic and environmental factors.

### **How common is schizophrenia?**

Schizophrenia is one of the most common serious mental health conditions. According to Shine, an organisation which supports people with mental ill health in Ireland, there are about 3900 people in Ireland living with schizophrenia . Men and women are equally affected by the condition. In men, schizophrenia usually begins between the ages of 15 and 30. In women, schizophrenia usually occurs later, beginning between the ages of 25 and 30.

**Misconceptions about schizophrenia:** Schizophrenia is often poorly understood and many people have misconceptions about it. Two of the most common misconceptions about schizophrenia are.

- People with schizophrenia have a split or dual personality.
- People with schizophrenia are violent.

**Split personality:** It is commonly thought that people with schizophrenia have a split personality, acting perfectly normally one minute and irrationally or bizarrely the next. However, this is not true. Although the term schizophrenia is a Greek word that means 'split mind', the term was first used long before the condition was properly understood.

It would be more accurate to say that people with schizophrenia have a mind that can experience episodes of dysfunction and disorder.

**Violent crime:** Most studies confirm that there is a link between violence and schizophrenia. However, the media tend to exaggerate this, with acts of violence committed by people with schizophrenia getting a great deal of high-profile media coverage. This gives the impression that such acts happen frequently when they are in fact very rare.

The reality is that violent crime is more likely to be linked to alcohol or other substance misuse than to schizophrenia. A person with schizophrenia is far more likely to be the victim of violent crime than the instigator.<sup>[4]</sup>

Schizophrenia is a serious mental illness that interferes with a person's ability to think clearly, manage emotions, make decisions and relate to others. It is a complex, long-term medical illness, affecting about 1% of Americans. Although schizophrenia can occur at any age, the average age of onset tends to be in the late teens to the early 20s for men, and the late 20s to early 30s for women. It is uncommon for schizophrenia to be diagnosed in a person younger than 12 or older than 40. It is possible to live well with schizophrenia.<sup>[5]</sup>

### ➤ **Types of schizophrenia**

**What are the types of schizophrenia?:** There are different kinds of schizophrenia. The International Classification of Diseases (ICD-10) manual describes them as below.

#### **Paranoid schizophrenia**

- Common form of schizophrenia.
- Prominent hallucinations and/or delusions.
- May develop at a later age than other types of schizophrenia.
- Speech and emotions may be unaffected.

**Hebephrenic schizophrenia**

- Disorganised behaviour without purpose.
- Disorganised thoughts: other people may find it difficult to understand you.
- Pranks, giggling, health complaints and grimacing.
- Short-lasting delusions and hallucinations.
- Usually develops between 15 and 25 years old.

**Catatonic schizophrenia**

- Rarer than other types.
- Unusual movements, often switching between being very active and very still.
- You may not talk at all.

**Undifferentiated schizophrenia**

Your diagnosis may have some signs of paranoid, hebephrenic or catatonic schizophrenia, but doesn't obviously fit into one of these types alone.

**Residual schizophrenia:** You may be diagnosed with this if you have a history of psychosis but only have negative symptoms.

**Simple schizophrenia**

- Rarely diagnosed in the UK.
- Negative symptoms are prominent early and get worse quickly.
- Positive symptoms are rare.

**Cenesthopathic schizophrenia:** People with cenesthopathic schizophrenia experience unusual bodily sensations.

**Unspecified schizophrenia:** Symptoms meet the general conditions for a diagnosis, but do not fit in to any of the above categories.<sup>[6]</sup>

**➤ How Do Doctors Diagnose Schizophrenia?**

There's no simple test to find out if someone you love has schizophrenia. It's a severe mental illness that is very hard to diagnose. It affects the way a person thinks, processes emotions, maintains relationships, and makes decisions.

It's especially hard to diagnose in teenagers because many of the first signs of schizophrenia in young people, such as bad grades, sleeping too much, or withdrawal from friends, can at first seem like typical problems. But schizophrenia is much more than that.

### **Is It Schizophrenia?**

If you think someone you know may have schizophrenia, reach out to your primary care doctor or psychiatrist. Tell them what you have noticed and ask them what steps you should take, especially if the person isn't interested in getting help.

The first thing they will want to do is a psychological evaluation and a complete medical exam. This will allow the doctor or specialist to track your loved one's symptoms over about six months to rule out other possible conditions, such as bipolar disorder, and other possible causes.

The doctor may also want to do a urine or blood test to make sure that alcohol or drug abuse isn't causing the symptoms. And a test that scans the body and brain, such as an MRI or CT scan, might also help eliminate other problems like a brain tumor.

### **Making the Diagnosis**

To get an official diagnosis of schizophrenia, your loved one has to show at least two of the following symptoms most of the time for a month, and some mental disturbance over six months:

- Delusions (false beliefs that the person won't give up, even when they get proof that they're not true).
- Hallucinations (hearing or seeing things that aren't there).
- Disorganized speech and behavior.
- Catatonic or coma-like daze
- Bizarre or hyperactive behavior

Getting the diagnosis as early as possible will improve your loved one's chances of managing the illness. If he gets the proper care, which will probably include medication and psychotherapy, a kind of talk therapy, he is likely to do better.<sup>[7]</sup>

### **Symptoms of schizophrenia**

A sizable proportion of people with schizophrenia have to rely on others because they are unable to hold a job or care for themselves.

Many may also resist treatment, arguing that there is nothing wrong with them.

Some patients may present clear symptoms, but on other occasions, they may seem fine until they start explaining what they are truly thinking.

The effects of schizophrenia reach far beyond the patient - families, friends, and society are affected too.

Symptoms and signs of schizophrenia will vary, depending on the individual.

### **The symptoms are classified into four categories**

- Positive symptoms - also known as psychotic symptoms. For example, delusions and hallucinations.
- Negative symptoms - these refer to elements that are taken away from the individual. For example, absence of facial expressions or lack of motivation.
- Cognitive symptoms - these affect the person's thought processes. They may be positive or negative symptoms, for example, poor concentration is a negative symptom.
- Emotional symptoms - these are usually negative symptoms, such as blunted emotions.

Below is a list of the major symptoms:

- Delusions - the patient displays false beliefs, which can take many forms, such as delusions of persecution, or delusions of grandeur. They may feel others are attempting to control them remotely. Or, they may think they have extraordinary powers and abilities.
- Hallucinations - hearing voices is much more common than seeing, feeling, tasting, or smelling things which are not there, however, people with schizophrenia may experience a wide range of hallucinations.
- Thought disorder - the person may jump from one subject to another for no logical reason. The speaker may be hard to follow or erratic.

Other symptoms may include:

- Lack of motivation (avolition) - the patient loses their drive. Everyday actions, such as washing and cooking, are neglected.
- Poor expression of emotions - responses to happy or sad occasions may be lacking, or inappropriate.
- Social withdrawal - when a patient with schizophrenia withdraws socially, it is often because they believe somebody is going to harm them.
- Unawareness of illness - as the hallucinations and delusions seem so real for patients, many of them may not believe they are ill. They may refuse to take medication for fear of side effects, or for fear that the medication may be poison, for example.

- Cognitive difficulties - the patient's ability to concentrate, recall things, plan ahead, and to organize their life are affected. Communication becomes more difficult.<sup>[8]</sup>

### ➤ Causes-Schizophrenia

#### Contents

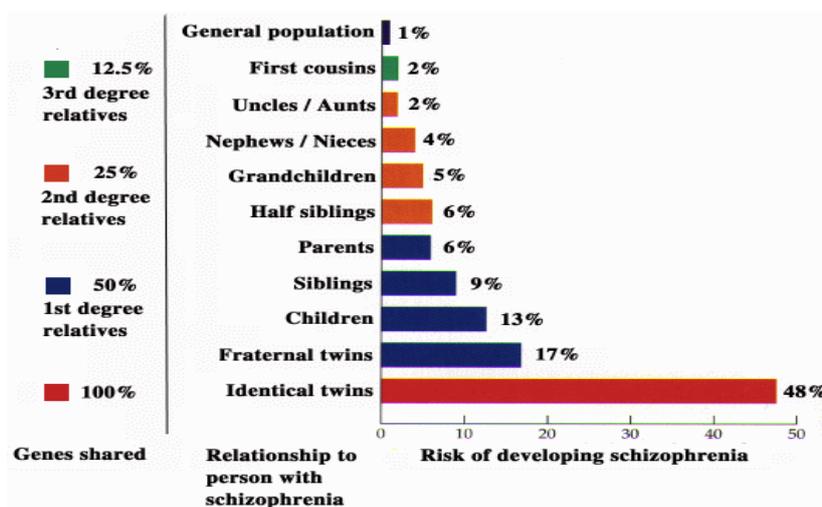
The exact causes of schizophrenia are unknown. Research suggests a combination of physical, genetic, psychological and environmental factors can make a person more likely to develop the condition.

Some people may be prone to schizophrenia, and a stressful or emotional life event might trigger a psychotic episode. However, it's not known why some people develop symptoms while others don't.

#### Increased risk

Things that increase the chances of schizophrenia developing include:

Genetics.



Schizophrenia tends to run in families, but no single gene is thought to be responsible.

It's more likely that different combinations of genes make people more vulnerable to the condition. However, having these genes doesn't necessarily mean you'll develop schizophrenia.

Evidence that the disorder is partly inherited comes from studies of twins. Identical twins share the same genes.

In identical twins, if one twin develops schizophrenia, the other twin has a one in two chance of developing it, too. This is true even if they're raised separately.

In non-identical twins, who have different genetic make-ups, when one twin develops schizophrenia, the other only has a one in seven chance of developing the condition.

While this is higher than in the general population, where the chance is about 1 in 100, it suggests genes aren't the only factor influencing the development of schizophrenia.

### **Brain development**

Studies of people with schizophrenia have shown there are subtle differences in the structure of their brains.

These changes aren't seen in everyone with schizophrenia and can occur in people who don't have a mental illness. But they suggest schizophrenia may partly be a disorder of the brain.

### **Neurotransmitters**

Neurotransmitters are chemicals that carry messages between brain cells.

There's a connection between neurotransmitters and schizophrenia because drugs that alter the levels of neurotransmitters in the brain are known to relieve some of the symptoms of schizophrenia.

Research suggests schizophrenia may be caused by a change in the level of two neurotransmitters: dopamine and serotonin.

Some studies indicate an imbalance between the two may be the basis of the problem. Others have found a change in the body's sensitivity to the neurotransmitters is part of the cause of schizophrenia.

### **Pregnancy and birth complications**

Research has shown people who develop schizophrenia are more likely to have experienced complications before and during their birth, such as.

- a low birth weight.
- premature labour.
- a lack of oxygen (asphyxia) during birth.

It may be that these things have a subtle effect on brain development.

### **Triggers**

Triggers are things that can cause schizophrenia to develop in people who are at risk.

### **These include**

#### **Stress**

The main psychological triggers of schizophrenia are stressful life events, such as:

- bereavement
- losing your job or home
- divorce
- the end of a relationship
- physical, sexual or emotional abuse.

These kinds of experiences, although stressful, don't cause schizophrenia. However, they can trigger its development in someone already vulnerable to it.

### **Drug abuse**

Drugs don't directly cause schizophrenia, but studies have shown drug misuse increases the risk of developing schizophrenia or a similar illness.

Certain drugs, particularly cannabis, cocaine, LSD or amphetamines, may trigger symptoms of schizophrenia in people who are susceptible.

Using amphetamines or cocaine can lead to psychosis, and can cause a relapse in people recovering from an earlier episode.

Three major studies have shown teenagers under 15 who use cannabis regularly, especially "skunk" and other more potent forms of the drug, are up to four times more likely to develop schizophrenia by the age of 26.<sup>[9]</sup>

### **➤ Diagnosis**

Diagnosis of schizophrenia involves ruling out other mental health disorders and determining that symptoms are not due to substance abuse, medication or a medical condition.

### **Determining a diagnosis of schizophrenia may include**

- Physical exam. This may be done to help rule out other problems that could be causing symptoms and to check for any related complications.

- Tests and screenings. These may include tests that help rule out conditions with similar symptoms, and screening for alcohol and drugs. The doctor may also request imaging studies, such as an MRI or CT scan.
- Psychiatric evaluation. A doctor or mental health professional checks mental status by observing appearance and demeanor and asking about thoughts, moods, delusions, hallucinations, substance use, and potential for violence or suicide. This also includes a discussion of family and personal history.
- Diagnostic criteria for schizophrenia. A doctor or mental health professional may use the criteria in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), published by the American Psychiatric Association.<sup>[10]</sup>

**Prevention:** Prevention of schizophrenia is difficult as there are no reliable markers for the later development of the disorder. There is tentative evidence for the effectiveness of early interventions to prevent schizophrenia. While there is some evidence that early intervention in those with a psychotic episode may improve short-term outcomes, there is little benefit from these measures after five years. Attempting to prevent schizophrenia in the prodrome phase is of uncertain benefit and therefore as of 2009 is not recommended. Cognitive behavioral therapy may reduce the risk of psychosis in those at high risk after a year and is recommended in this group, by the National Institute for Health and Care Excellence (NICE). Another preventative measure is to avoid drugs that have been associated with development of the disorder, including cannabis, cocaine, and amphetamines.<sup>[13]</sup>

### Medication



Risperidone (trade name Risperdal) is a common atypical antipsychotic medication.

The first-line psychiatric treatment for schizophrenia is antipsychotic medication, which can reduce the positive symptoms of psychosis in about 7 to 14 days. Antipsychotics, however,

fail to significantly improve the negative symptoms and cognitive dysfunction. In those on antipsychotics, continued use decreases the risk of relapse. There is little evidence regarding effects from their use beyond two or three years. However use of anti-psychotics can lead to dopamine hypersensitivity increasing the risk of symptoms if antipsychotics are stopped.

Amisulpride, olanzapine, risperidone, and clozapine may be more effective but are associated with greater side effects.<sup>[14]</sup>

### ➤ **How is schizophrenia treated?**

Unfortunately, there is not yet a cure for schizophrenia. This may be because the causes of the illness are not fully understood. You may find that you need to continue treatment to keep well.

Up to 3 in 10 people with schizophrenia may have a lasting recovery, and 1 in 5 people may show significant improvement. Around half of people diagnosed with schizophrenia will continue to have it as a long-term illness. Everyone's experience of schizophrenia is different. It may get better then worse, involve further episodes of being unwell, or may be more constant.

You need to find the right treatment for you. The National Institute for Health and Care Excellence (NICE) recommends that you should be offered a combination of medication and talking therapies.

**Medications:** Your doctor may offer you medication known as an 'antipsychotic'. These reduce the symptoms of schizophrenia, but do not cure the illness. Your healthcare professionals should work with you to help choose a medication. If you want, your carer can also help you make the decision. Doctors should explain the benefits and side effects of each drug. In the past, antipsychotics had negative side effects. Some people find that the side effects of newer antipsychotic drugs are easier to manage. If you have been on an antipsychotic for a few weeks and the side effects are too difficult to cope with, you should ask your doctor about trying a different one. NICE state that people who have not responded to at least 2 other antipsychotic drugs should be offered clozapine. Your medication should be reviewed at least once a year.

### Psychosocial treatments

Your doctor should offer you psychosocial treatments. These treatments help you to look at how your thoughts and behaviour are influenced by the people and society you live in. This can include the following.

- Talking treatments. NICE says the NHS should offer cognitive behavioural therapy (CBT) to all adults with psychosis or schizophrenia. CBT can help you to manage your feelings and symptoms better. CBT does not get rid of your symptoms.
- Psycho-education. This involves learning about your illness, your treatment and how to spot early signs of becoming unwell again. It can prevent you having a full-blown episode. Psycho-education may also be helpful for anyone who is supporting you, such as family, a partner or a trusted colleague.
- Arts therapies. This can help to reduce the negative symptoms of the illness. It can help you to express yourself more creatively.
- Family therapy – NICE recommend family members of people with psychosis and schizophrenia should be offered family therapy. This can help to improve how you feel about family relationships. This can help reduce any problems in the family caused by your symptoms.<sup>[11]</sup>

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