Medical Services

SCHIZOPHRENIA

1. Description

Schizophrenia is a major group of mental disorders of unknown cause, characterised by a complex set of disturbances of thinking, perception, affect and social behaviour.

The typical course of the disease is of acute episodes of hallucination, delusions and florid disorganisation of thought; superimposed on a persistent disorder of initiation and organisation of thought and behaviour.

1.1 Definition

The term schizophrenia was introduced in 1911 by Eugen Bleuler to describe the chronic psychoses of young and middle life formerly known as dementia praecox. Bleuler regarded fragmentation of mental processes to be the hallmark of the illness and chose the name to denote this.

Thus the initial concept of schizophrenia was the fragmentation of mental functions; delusions and hallucinations were considered to be a transient feature of the illness. However, as attempts were made to improve the reliability of diagnosis, delusions and hallucinations assumed greater importance and the emphasis shifted from the chronic, to the acute phase of the illness.

In 1959, Kurt Schneider attempted to define a set of symptoms that would provide a reliable basis for the diagnosis of schizophrenia. He identified a set of experiences that have become known as **First Rank Symptoms** (Appendix B). Schneider did not give explicit definitions of first rank symptoms and clinicians have used various definitions that differ in detail, Mellor (1970) formulated a strict set of definitions (See Glossary of terms Appendix B)[1].

No biological marker exists for schizophrenia. Diagnosis is made by examination of the mental state, by clinical interview and observation of the patients' behaviour.

Historically there have been substantial differences in the diagnostic practices between the United Kingdom and the United States. In the UK the emphasis is placed on First Rank Symptoms, whilst in the USA, a broad concept of schizophrenia has developed from a tradition influenced by Bleuler. This difference is reflected in the two major diagnostic criteria for schizophrenia,

- The International Classification of Disease (ICD 10) published by the World Health Organisation[2].
- The Diagnostic and Statistical Manual Of the American Psychiatric Association (DSM IV)[3].

The diagnostic criteria for schizophrenia according to ICD10 and DSM IV are given in Appendix B.

1.2 Subtypes and Syndromes of Schizophrenia

ICD-10 divides schizophrenia into 4 subtypes: paranoid, hebephrenic, catatonic and undifferentiated[2]. DSM IV also divides schizophrenia into four subtypes: paranoid, disorganised, catatonic and undifferentiated residual[3].

These subtypes are based on initial presentation and although useful as descriptive shorthand, do not reliably predict treatment or prognosis.

Schizophrenic symptoms can be seen as an:

1. Excess or distortion of normal function = **positive symptoms**

or

2. A decrease or loss of normal function = **negative symptoms**.

Positive Symptoms	**Negative Symptoms**
Formal Thought Disorder	Poverty of thought and speech
Disorganised behaviour	Impaired volition
Inappropriate affect	Blunt affect and anhedonia
Delusions	Social withdrawal
Hallucinations	

In chronic schizophrenia, the symptoms appear to segregate into **three core syndromes**.

Negative symptoms appear to cluster together as part of a syndrome termed psychomotor poverty.

Positive symptoms fall into two separate clusters, reality distortion and disorganisation[1].

Psychomotor Poverty	Poverty of speech
	Blunted affect
	Decreased spontaneous movement
Reality Distortion	Delusions
	Hallucinations
Disorganisation	Inappropriate affect
	Incoherent speech
	Poverty of content of speech

2. Epidemiology

The lack of diagnostic uniformity has been a major problem in the epidemiological study of schizophrenia, making comparisons between studies almost impossible. The diagnosis of schizophrenia was more loosely applied in the USA than in the UK. The US/UK diagnostic project in the 1970s concluded that epidemiological differences were due to variations in diagnostic practice[4].

Case finding is a second problem in schizophrenia epidemiological research. Most studies are based on hospital admissions, which are subject to variations in service provisions and admission policies. Bias occurs from the inclusion of re-admissions, and over representation of more severe cases. Case registers that record all first contacts with the psychiatric services for a specified area, over a specified time period, are a useful resource in developed countries.

Due to these problems, the conclusions reached from epidemiological studies in schizophrenia are frequently contested.

2.1 Prevalence

The majority of epidemiological studies have estimated the point prevalence of schizophrenia to be in the range 1.4 to 4.6 per 1000 population[5].

The lifetime prevalence (risk) of schizophrenia is estimated at 1% (10 per 1000 population).

2.2 Incidence

The incidence rate is a better indicator of the morbidity within a population. Its estimation depends on how reliably the point of onset of the disorder can be determined and hence is dependent on the diagnostic criteria used.

Studies using restrictive criteria such as ICD10, DSM III and its successors report incidence rates two to three times lower than those reported by studies which use broad criteria (ICD8, ICD9)[5].

Reported incidence rates in the UK range between 0.08 – 0.25 cases per year per 1000 population[5].

2.3 Epidemiological Variables

Men develop schizophrenia on average 5 years earlier than women. The peak incidence of onset is between 15-25 years in men and 25-35 years in women[5].

Whether the total lifetime risk for the development of schizophrenia is different in men and women has not yet been determined[5].

There is no strong evidence for consistent sex differences in the symptom profiles of schizophrenia[5].

Schizophrenia occurs in all cultures.

Geographical variation may reflect the effect of environmental and/or genetic aetiological factors.

In industrialised countries there are more schizophrenic patients in the lower social classes.[6,7] Admission rates for schizophrenia are higher in urban areas than in rural areas. Within urban settings, admission rates for schizophrenia are higher in the socially disadvantaged areas.

Two hypotheses have been put forward to explain these findings:

1. ***Social Drift Hypothesis*** postulates that affected individuals drift down to lower socio-economic classes as a consequence of the social, occupational and financial disadvantage associated with schizophrenia.
2. ***Social Causation Hypothesis*** suggests that socio-economic deprivation increases the risk of exposure to possible environmental risk factors, e.g. obstetric complications and prenatal virus exposure.

Until recently, the social drift hypothesis was favoured, however both probably play a role[7].

A higher incidence and prevalence of schizophrenia in recent immigrants has been reported.

In the UK, much research has focussed on the high rate of schizophrenia in first and second generation Afro-Caribbean immigrants. The social adversity experienced by immigrants may explain the high incidence of schizophrenia.[6] The second-generation effect may have a different aetiology.

Most recent studies do not support the idea that the increased rates are due to diagnostic bias due to cultural intolerance of immigrants,[7] and recent studies have shown the outcome of psychotic illness to be similar in all ethnic groups.[8]

Schizophrenic patients are more likely than the general population to be born in winter or early spring. The size of the effect is in the order of 5-10%.

There is controversy as to whether the incidence of schizophrenia is showing variation over time. There have been reports that the incidence in industrial countries rose in the 19th century and has shown a decline recently. However others argue that this reflects changing policies in caring for the severely mentally ill[5].

3. Aetiology

Schizophrenia is a heterogeneous disorder and this may reflect several pathological processes with different aetiologies.

Aetiological factors can be divided into:

1. ***Predisposing factors***: mainly biological factors, which predispose the individual to the disorder.
2. ***Precipitating factors***: largely social factors, which precipitate the onset and relapse of the disorder.

Schizophrenia may be considered as a neurodevelopmental disorder. A possible environmental insult in a biologically predisposed individual leads to abnormalities in brain function, which manifest themselves as schizophrenia. Abnormalities in brain structure, brain function, neuronal function and neurotransmitter function have been reported in schizophrenia[7].

3.1 Predisposing Factors

A **genetic predisposition** to the development of schizophrenia has been shown by family studies, adoption studies and twin studies.

Schizophrenia does not follow a Mendelian model of transmission, and both single gene and polygenic models of inheritance have been postulated. Environmental influences are significant; shown by monozygotic twin concordance rates of <50%. Given the heterogeneous nature of schizophrenia, it is likely that both genetic and non-genetic forms of the disease exist.

People who develop schizophrenia are more likely to have a history of antenatal and birth complications[5] than the general population.

An excess of schizophrenic patients are born in late winter and early spring. A number of reports have postulated that in-utero exposure to influenza and other viruses increase the subsequent risk of schizophrenia. This has been countered by a similar number of reports that have found no association, and the theory remains controversial[5].

3.2 Precipitating Factors

Biological predisposition alone cannot account for the development of schizophrenia. Interpersonal, social and cultural factors are thought to influence the course of schizophrenia.

Expressed emotion (EE) is a measure of how families interact based on a structured interview (The Camberwell Family Interview). Families with high levels of expressed emotion score highly on critical comments, hostility and over involvement. Patients from families with high EE relapse more frequently, regardless of the severity of symptoms or the behavioural disturbance.

Abuse of specific drugs can produce a psychosis that mimics schizophrenia, however drug abuse per se, is thought to precipitate schizophrenia in predisposed individuals.

3.3 Brain Abnormalities in Schizophrenia

Abnormalities have been reported in brain structure and function in schizophrenia. Structural abnormalities are seen on computed tomography (CT) scans and Magnetic Resonance Imaging (MRI) scans. Brain abnormalities are present at the onset of schizophrenia. Changes have been noted in the whole brain volume, ventricular volume, frontal lobes, temporal lobes and limbic structures (Appendix C).

Functional brain abnormalities have been reported in association with the symptom clusters of psychomotor poverty, disorganisation and reality distortion[1]. Abnormalities have also been reported with single symptoms and cognitive tasks.

Magnetic Resonance Spectroscopy (MRS) is an in-vivo method that allows investigation of dynamic processes at the neuronal level, and abnormal neuronal function has been noted.

There is some evidence of abnormal neuronal membrane metabolism and hence abnormal synaptic function. The abnormalities appear ongoing, however they appear to have periodic exacerbations, possibly during the most active phases of the illness[7].

Neurotransmitter abnormalities have been reported in several systems.

Drugs which cause dopamine release (e.g. amphetamines), dopamine agonists (e.g. bromocriptine) or dopamine precursors (e.g. L- Dopa), produce psychotic symptoms or worsen schizophrenia, and the clinical potency of neuroleptic drugs correlates strongly to their binding affinity to dopamine type 2 (D2) receptors. Historically, the **dopamine hypothesis** suggested that schizophrenia was due to hyperactivity of the brain's dopaminergic system.

However, more recently other neurotransmitter systems have been implicated.

At least 15 receptors have been identified in the **serotonin** (5 HT) system. The atypical antipsychotic drugs are potent 5HT antagonists and have a stronger affinity for 5HT than for dopaminergic receptors. Their mode of action may reflect modulation of activity in both systems.

Glutamate and **aspartate** are amino acids, which act as excitatory neurotransmitters. Phenylcyclidine binds to amino acid receptors within the brain and produces a syndrome that mimics both negative and positive symptoms of schizophrenia.

4. Differential Diagnosis

As the boundaries between schizophrenia and other psychotic disorders are ill defined, differential diagnosis can be difficult. Diagnosis requires clusters of symptoms to be recognised over a period of time.

Symptoms suggestive of schizophrenia can be found in several neurological and psychiatric disorders. Differential diagnosis should consider the following conditions:

Medical Conditions

- Epilepsy (particularly temporal lobe epilepsy);
- Central nervous system neoplasms (especially frontal or limbic);
- Central nervous system trauma;
- Central nervous system infections (especially malaria, other parasitic diseases, neurosyphilis, herpes encephalitis);
- Cerebrovascular accidents;
- Other central nervous system diseases (leukodystrophy, Huntington's chorea, Wilson's disease, Systemic lupus erythematosus etc);

Psychiatric Conditions (Appendix A: Atypical Psychoses)

- Schizoaffective disorder;
- Schizophreniform disorder;
- Acute and transient psychotic disorders;
- Persistent delusional disorders;
- Drug induced psychosis (especially related to use of amphetamine, LSD and phencyclidine);
- Mania;
- Psychotic depression;
- Personality disorder;
- Schizotypal disorder;
- Factitious disorder (e.g. Münchausen's syndrome).

4.1 Co-Morbidity

Patients with schizophrenia are at greater risk of developing another mental illness than the general population[9].

Co-morbidity with depression and substance abuse is important with relation to treatment and prognosis.

4.1.1 Depression

At any one time, 25% of patients with schizophrenia exhibit clinically depressed mood[9] and 81% of patients have depressive symptoms during their first psychotic episode[7].

Depressive features are often present in the early phases of subsequent psychotic episodes, during acute episodes and after recovery from psychosis (post-psychotic depression).

Patients experiencing depressive symptoms when in remission from a psychotic episode are at a high risk of suicide. This is especially true of young males with good premorbid functioning and high expectations[9].

Depression in schizophrenia needs to be differentiated from:

- Neuroleptic induced dysphoria
- Neuroleptic induced akinesia
- Negative symptoms of schizophrenia.

Depressive symptoms during an acute episode improve with antipsychotic medication regardless of the antipsychotic agent used. Clozapine appears to be effective in decreasing suicide in schizophrenia[7].

Antidepressant treatments do not appear to be more effective than placebo when used alone to treat depression in schizophrenia[7].

4.1.2 Substance Abuse

The prevalence of substance misuse in schizophrenia is dependent on demographic factors. It has been reported as 47%, with schizophrenic patients 4.6 times more likely to misuse drugs or alcohol than the general population[10].

Patients with schizophrenia who misuse drugs have a tendency to use activating drugs rather than central nervous system depressants such as alcohol, hypnotics and opiates[10].

The preferred drugs mimic the effects of schizophrenia and cause relapse, such as:

- PCP (angel dust)
- Cocaine/crack
- LSD
- Amphetamines
- Marijuana and other cannabis products.

There is evidence to suggest that schizophrenic patients with better premorbid functioning are more likely to misuse drugs. Paradoxically, those patients who have a better prognosis with regard to their schizophrenia are most at risk of descending into drug misuse and its attendant problems[10].

The complications of drug misuse in schizophrenia are:

- Exacerbation of symptoms
- Increased relapse and hospitalisation
- Homelessness and downward social drift
- Violent and criminal behaviour
- Poor compliance
- Decreased response to medication
- Poor prognosis and outcome in established psychotic illness.

Substance abuse frequently goes undetected in schizophrenia, and the first index of effective management is a high index of suspicion. Patients with a dual diagnosis of schizophrenia and substance misuse are often passed between acute psychiatric services and substance misuse services, the so-called 'Ping-Pong effect'. This can be minimised by having an agreed management policy.

4.1.3 Medical Co-morbidity

The medical co-morbidity in schizophrenia is less well investigated, however there is an increase in morbidity and mortality from chronic diseases, especially cardiovascular disease.

In recent years, HIV infection has been reported with increasing frequency[9].

5. Clinical Course

The clinical course of schizophrenia shows significant variability, in mode of onset, degree of symptom persistence and long-term outcome. The following phases may or may not be present in any individual.

5.1 Onset

5.1.1 Premorbid Phase

- Social and cognitive defects may appear in childhood.
- Subtle motor, linguistic and social dysfunction has been reported in children who later develop schizophrenia.
- The pre-schizophrenics show increasing developmental deviation with age, with cognitive slippage becoming more marked in early adolescence[11].

5.1.2 Prodromal Phase

- Precedes the acute onset of florid psychotic symptoms and may last several months.
- Subtle behavioural changes are followed by preoccupation and social withdrawal. This is characterised by odd ideas, eccentric interests, changes in affect, unusual speech and bizarre perceptual experiences.
- Agitation becomes prominent and then overt psychosis appears.
- There is current debate as to whether treatment should be initiated in this stage, i.e. before overt psychotic symptoms appear.

5.1.3 Acute Onset

- The onset of schizophrenia may be abrupt.
- Dysphoria, irritability, obsessional thoughts, poor concentration and sleep disturbance occur over a few weeks.
- Followed by the development of delusions and hallucinations, and a rapid deterioration in occupational and social functioning.
- May be precipitated by a stressful experience or drugs.

5.2 Acute Phase

The most frequent symptoms of acute schizophrenia found in the International Pilot Study of Schizophrenia (IPSS)[12] were:

Symptom	Frequency (%)
Lack of insight	97
Auditory hallucinations	74
Ideas of reference	70
Suspiciousness	66
Flatness of affect	66
Second person hallucinations	65
Delusional mood	64
Delusions of persecution	64
Thought alienation	52
Thoughts spoken aloud	50

- 83% achieve a remission within 12 months, however 14% only achieve a partial remission[13].
- Mean time to achieve a remission was 42 weeks, median time was 10 weeks[13].

5.3 Medium and Long-term Course

- Schizophrenia is a chronic illness; those who recover may experience relapses many years after the initial presentation.
- Historically, the course of schizophrenia was considered to be one of continuous deterioration. This is now thought to be overly pessimistic; however there is a wide range of variability.
- The greatest variability occurs in the initial stages of the disease, with the clinical course becoming established within the first five years.
- In most cases, the course follows one of four broad patterns[14] (Table 1).

5.3.1 Table 1: Initial Course of Schizophrenia Derived from Shepherd[14]

Course of Disease 5 years after First Episode (% of cases)	Number of Acute Psychotic Episodes	Residual Functional/Cognitive Impairment
Complete Remission (22%)	Single	None
Episodic Remittent (35%)	Multiple	None or minimal
Episodic with stable deficit (8%)	Multiple	Impairment following first episode, subsequent episodes return to this level of impairment
Episodic with progressive deficit (35%)	Multiple	Increasing impairment following each acute exacerbation

6. Treatment

Treatment of schizophrenia can be broadly divided into treatment of acute psychotic episodes, prevention of relapse and minimisation of functional disability. Treatment includes drug and psychosocial interventions, the former being used for treatment of acute episodes and prevention of relapse, and the latter for prevention of relapse and disability.

6.1 Drug Treatment

6.1.1 Typical Antipsychotic Drugs

The term neuroleptic was introduced in the 1950's to characterise compounds that had an antipsychotic effect that was not due to sedation.

These are now called 'typical' antipsychotic compounds and include **chlorpromazine, trifluoperazine, flupenthixol, haloperidol** and **pimozide.**

Typical antipsychotic compounds:

- Are more effective in treating the positive symptoms of schizophrenia than the negative symptoms;
- No one drug is superior to another, however they do differ in their side effect profile; as a rule the higher the potency, the higher the risk of extrapyramidal side effects; the lower the potency, the greater the risk of sedation, hypotension, anticholinergic effects and seizures.

6.1.2 Atypical Antipsychotic Drugs

Atypical antipsychotic drugs are a new diverse group of compounds that include **clozapine, olanzapine, risperidone, quetiapine, amisulpride** and **zotepine.**

Atypical antipsychotics:

- Are effective in reducing positive symptoms,
- May be more effective in reducing negative symptoms than typical antipsychotics,
- Have a better side effect profile than typical antipsychotics.

6.1.3 Side effects of Antipsychotics

Antipsychotic agents have wide ranging side effects that are distressing to patients and are potentially fatal.

CNS Side Effects:

Sedation	Commonly seen on initiation of treatment
Extrapyramidal (EPS)	Includes muscle spasm, tremor, dystonia, akathisia, drug-induced Parkinsonism. Can occur with all antipsychotics, but atypical less likely than typical to produce EPS. Lowest likelihood with amisulpride. Treated with anticholinergic drugs such as procyclidine or orphenadrine.
Tardive Dyskinesia (TD)	About 5% of patients develop TD for each year of treatment with antipsychotics. Two types of movement are commonly seen: *Stereotypies*: Commonly involves the mouth and face; chewing, grimacing; lip smacking/licking pursing; lateral tongue movements or protrusion. Although may be complex movements affecting any part of the body. *Dystonic movement*: Commonly involve cranial and neck muscles, e.g. tonic jaw deviation and torticollis. Involvement of truncal muscles can produce severe scoliosis. Can occur up to 6 months after the drugs are discontinued The elderly are most at risk; the risk of TD increases threefold after 40 years of age. TD is seen with typical and atypical antipsychotics, although clozapine, olanzapine and risperidone are said to have a lower propensity and have been used to treat TD. Discontinuation of the antipsychotic may improve tardive dyskinesia, or paradoxically, may increase it. Anticholinergic agents (benzotropine) and GABA receptor agonists (clonazepam) are useful for dystonia but not for stereotypies.
Seizures	Antipsychotics lower the seizure threshold; the risk is greatest in those receiving low potency typical antipsychotics or clozapine.

Other Side Effects

Anticholinergic Effects	Dry mouth, blurred vision, urinary hesitancy or retention, constipation and flushing are commonly seen early in treatment. Tolerance often develops and treatment is not needed. If symptoms persist then relief may be obtained by switching to a high potency antipsychotic.
Cardiovascular	ECG changes, tachycardia and postural hypotension are commonly seen. Risks are greater in those with pre-existing cardiovascular disease and in the elderly. All classes of antipsychotic cause prolongation of the QT interval, and concern has been expressed that this could be associated with fatal arrhythmia.
Endocrine Effects	Hyperprolactinaemia is common with typical antipsychotics. Results in gynaecomastia and impotence in men, galactorrhoea, and menstrual irregularities in women.
Skin	Common allergic skin reactions include a maculopapular rash, peri-orbital swelling and urticaria. Chlorpromazine is associated with photosensitivity, pigment changes within exposed skin, and granular deposits within the cornea and lens.
Haematological	Benign leucopoenia occurs in approximately 10% of patients treated with antipsychotics. Agranulocytosis is a potentially fatal side effect which occurs in 0.005% of patients treated with typical antipsychotics, and 1% of patients receiving clozapine. It is usually reversible on discontinuation of medication. Patients commenced on clozapine should undergo intense haematological monitoring.
Hepatic Effects	Abnormal liver function tests are common but of little significance. Patients taking chlorpromazine sometimes develop jaundice.
Weight Gain	Weight gain is a common side effect of all anti-psychotic agents;on average 10kg is gained. Weight gain occurs early in treatment and stabilises after 1-2 years. Weight gain is an important issue with regard to compliance.
Neuroleptic Malignant Syndrome	NMS is a rare idiosyncratic reaction that can occur with any antipsychotic agent, independently of dose or duration of treatment. Development of NMS constitutes a medical emergency. Patients present with worsening of extrapyramidal symptoms, muscle rigidity and autonomic instability (tachycardia, hypotension, hypertension or wide swings in blood pressure) and hyperthermia (commonly >41°C.) Mortality may be as high as 20%, secondary to multiple organ failure.

6.2 Acute Treatment of Psychosis

Treatment should begin as soon as the diagnosis is established as:

- Delay in the initiation of treatment is associated with a slower resolution of psychotic symptoms, and the level of remission may be compromised.
- A long duration of the illness before neuroleptic medication is commenced, is a strong predictor of future relapse.

About 30% of schizophrenic patients show poor response to drug treatment, with persistent psychotic symptoms and functional impairment despite medication. In this situation it is important to exclude covert non-compliance as a reason for treatment failure.

6.3 Maintenance Drug Treatment

The aim of maintenance therapy is to maintain maximal well-being and psychosocial function with the minimum dose of medication, to monitor long-term medication, and to complete active rehabilitation and integration.

Following the first episode of psychosis, **20-25% of patients will not relapse** at all, or will have a significant period between relapses. Unfortunately, this group cannot be identified prospectively.

75-80% of patients with schizophrenia will experience one or more relapses; the risk of relapse is greatest following discontinuation of antipsychotic medication.

For patients who show a poor response to treatment, discontinuation of treatment is not an option.

Patients who have had several psychotic episodes usually require life-long maintenance antipsychotic medication. For the majority this is in the form of continuous drug therapy which may be administrated orally or by intramuscular depot injection.

Intermittent drug therapy may be an alternative in those who refuse to take medication but agree to regular psychiatric monitoring. This involves the early initiation of treatment during the prodromal phase of a relapse.

6.4 Psychosocial Management of Schizophrenia

Supportive psychotherapy is useful in helping schizophrenic patients cope with chronic disability and dealing with the psychological problems common to everyone. Psychotherapy should aim to resolve the patients' personal and environmental problems, and focus on rehabilitation needs, which is developed into the idea of psychosocial rehabilitation.

Environmental manipulation (providing supportive housing, day activities and ready access to welfare benefits) is important for the prevention of social disadvantage.

Psychosocial approaches are important in the long-term management of schizophrenia and other psychoses. Numerous approaches have been used with varying degrees of success.

Psychosocial Treatment	Evidence of Benefit
Psychodynamic Psychotherapy	No good evidence that insight or growth orientated treatments are beneficial[15].
Cognitive Behavioural Therapy	There is limited evidence from randomised controlled trials that suggests CBT may reduce relapse rates[16]. Some preliminary evidence that this therapy is useful for those patients who continue to experience psychotic symptoms despite optimal drug treatment[15].
Family Intervention	Systematic reviews of randomised controlled trials (RCTs) has found that family intervention significantly reduces relapse rates compared with usual care[16,15]. Although thought to work through reducing expressed emotion, some part may be played by increased compliance with treatment (both medication and clinic attendance)[16]. Family therapy has not been found to significantly affect social functioning[15].
Psychoeducational Therapy	There is limited evidence that psychoeducation improves compliance, however one systematic review has found it to be effective against relapse[16].
Social Skills Training	Interpersonal skills acquired within such a treatment environment often do not generalise into behavioural change in the community, and supportive social environments may be more valuable than specific treatment sessions[9,15,17]. There is limited evidence from RCTs that social skills training may reduce relapse rates[16].

6.5 Compliance with Treatment

In schizophrenia it is estimated that up to 50% of outpatients and 20% of inpatients are not compliant with prescribed medication[7].

Non-compliance is associated with high rates of relapse and readmission.

FACTORS ASSOCIATED WITH NON-COMPLIANCE

Demographic Variables	Young and elderly patients
	Males
	Members of ethnic minority groups
Illness Related Variables	High levels of positive symptoms
	Poor insight
	Substance and alcohol abuse
Social and Personal Attitudes	Prejudices against treating mental disorders with drugs
	Stigma associated with mental illness
Latrogenic	Physician underestimation of non-compliance
	Lack of information given to patients and carers
	Failure to recognise and treat side effects
	Inconsistency in diagnosis and treatment
Drug Related	Side effects, especially extrapyramidal side effects, akathisia, sexual dysfunction and weight gain
	Feared side effects
	Patients perceive little benefit from medication

7. Prognosis

The outcome of schizophrenia can be considered as:

a) Symptomatic recovery

b) Recovery of social functioning

Although clinical and social recovery are closely linked, social recovery often occurs in the presence of persisting symptoms.

The outcome of schizophrenia is worse in developed countries compared to developing countries[5].

About 20% to 25% of patients have complete recovery following the first episode. The remainder have a varied course which may involve relapses and ongoing cognitive deficit.

7.1 Factors Indicating a Poor Prognosis[7,18]

Sociodemographic	Male, Single
Pre-morbid Adjustment	Previous psychiatric history
	Premorbid personality problems
	Poor social relationships
	Poor work/educational record
Clinical Features	Insidious onset
	Onset in adolescence
	Multiple psychotic episodes, prominent positive symptoms
	Marked cognitive impairment
	Cerebral ventricular enlargement or sulcal widening
	Discontinuation of medication

7.2 Factors Indicating Good Prognosis

Sociodemographic	Female
Clinical Features	Acute presentation with florid psychotic symptoms
	Evidence of schizoaffective features
	Marked mood disturbance at onset
	Family history of affective illness

7.3 Mortality

Although schizophrenia is not itself a fatal disease, death rates of people with schizophrenia are at least twice as high as the general population, and life expectancy is reduced[19].

The leading causes of death amongst schizophrenic patients are suicide and accidents. The lifetime risk of suicide in schizophrenic patients has been estimated as 10% (twelve times that of the general population)[9].

There is also an excess of mortality from cardiovascular disease[9].

8. Main Disabling Effects

The basic *disabilities* in schizophrenia are due to:

- Positive and negative psychotic symptoms;
- A range of abnormalities in psychological functioning, such as poor attention and concentration; and failure to recognise, and act on, social or affective cues.

Disability may also arise as a side effect of the treatment of schizophrenia, such as the abnormalities of motor function secondary to antipsychotic medication.

These disabilities cause reduced social interaction and may affect self-care.

- *Poor interpersonal skills:* affects relationships with family, carers and the wider community. This impacts on participation in leisure and social activities.
- *Inability to carry out tasks:* affects self-care and occupational performance.

Persisting moderate to severe disability is present in 40% of males with schizophrenia and 25% of females.

8.1 Schizophrenia, Work and Vocational Rehabilitation

Most people with severe mental illness identify paid employment as one of their goals, with 53-61% of patients with schizophrenia expressing a desire to work[20]**.**

Competitive employment (holding a regular community job as opposed to being employed in a program overseen by a rehabilitation agency) has been estimated at less than 20% for severely mentally ill patients[21].

A prospective study in the 1970s by the Tavistock Institute of Human Relations[22], investigated the employment outcome of a cohort of patients discharged following admission for acute schizophrenia. This showed that the outcome was best for those patients who returned to their own occupation[22].

Following an admission for an acute psychotic episode, perceived obstacles to returning to their own occupations were:

- A lack of liaison between health professionals and employers;
- A patient's belief that work might have caused their illness;
- A perceived lack of support for patients, their colleagues and supervisors.

Patients with schizophrenia were more likely to remain in jobs that were characterised by:

- A high objective quality (good opportunities for learning and advancement, freedom to organise work and time, and feedback on performance);
- Good supervision;
- Good social climate within the work group;
- Work organised so that they were working with at least one other person, in a small (<10) group;
- Interesting work, and a feeling that the quality of work mattered more than the amount they did.

This is in contrast to the sorts of jobs that patients with schizophrenia are often directed towards by well-meaning professionals.

The study also showed that loss of employment due to dismissal was a rare occurrence. However following an admission, patients appeared to stay in jobs for shorter periods of time, and voluntarily left employment more often[22].

Loss of employment may be a symptom of schizophrenia, rather than its consequence. By leaving a job perceived as stressful, patients are consciously or subconsciously reducing their stress levels. Late arrival at work and a failure to return to work after lunch can also be regarded as manifestations of 'withdrawal' behaviour. One of the consequences of this is a poor employment record, which is often regarded as employers as a more serious handicap than a psychiatric history. Concealment of their illness or employment history, in order to obtain employment may be a long-standing source of anxiety.

Clinicians often worry about encouraging patients to seek employment, fearing that the stress of employment may adversely affect them. However studies do not report adverse clinical outcomes following the change to supported employment programmes, and indeed there have been improvements in non-vocational outcomes reported[23].

The costs to the individual with schizophrenia resulting from the low employment rate include financial limitations, social stigma and poor self esteem[20]. The cost to UK society of a diagnosis of schizophrenia (excluding benefit payments) has been estimated at £23,000 per year, 49% of this cost being due to lost productivity[24].

There is a long history of **vocational rehabilitation** in schizophrenia, which was traditionally provided by hospital or clinic based workshops and subsequently by sheltered employment programmes. The value of vocational rehabilitation programmes has been questioned based on the negative data concerning patients' employment following discharge.

Recent developments include **Supported Employment Programmes** which have been shown to be more effective in increasing the rates of competitive employment[21]. Although supported employment is the only evidence-supported vocational rehabilitation programme[25], there is no data on long-term benefits[15,26].

Research-based principles of vocational rehabilitation for psychiatric disabilities include[27]:

- Use of situational assessment in the evaluation of vocational skills and potential;
- Offering clients competitive or supported employment rather than sheltered or unpaid work;
- Rapid placement into paid community employment rather than lengthy prevocational training;
- Ongoing vocational support;
- Tailoring of job support and development to the client's individual preferences;
- Avoidance of economic disincentives to work.

8.2 Disability Discrimination Act

22% of patients with schizophrenia will have a single episode from which they will make a complete recovery[14] and this group of patients are able to return to the work place. A further 35% will have an episodic remitting course and may be able to return to work between psychotic episodes.

Schizophrenia and the atypical psychoses are covered by the Disability Discrimination Act under 'Mental Impairment'. The activities most likely to be affected by schizophrenia are:

- Perception of risk of physical danger;
- The ability to concentrate, learn and understand;
- Memory;
- Manual dexterity and physical co-ordination may be affected by the side effects of medication.

"Long-term" means that the impairment must have lasted for, or is likely to last for, twelve months or longer. As those who have a single episode cannot be identified prospectively, then this will apply to all new cases of schizophrenia.

8.3 Assessing the Claimant

Schizophrenia causes social disability; side effects of psychotropic medication may cause motor disturbances and physical disabilities.

Whilst it may appear that claimants are functioning relatively well in the community, this may reflect the level of support being provided. Without support some people might neglect to take care of their personal needs and omit to take medication. As a consequence, without such support, some could return to a severely disturbed mental state.

The examining doctor should bear in mind that claimants with schizophrenia may have little insight into their disorder and underestimate their level of disability, and that claimants with delusional disorders may actively deny that they have a mental

illness.

On greeting the claimant and on initial observation, extra-pyramidal side effects, stereotypies or dystonias of tardive dyskinesia may be apparent. The appearance of the claimant may be unkempt, pointing to poor self-care, and they may appear distracted, suggestive of active hallucinations. Prominent negative symptoms such as flat affect or poverty of speech may be apparent and indicate probable severe restriction of social functioning.

The typical day history may show the patient to be living independently, or in a hostel or group home. These vary in structure and support, from high dependency, that can provide 24-hour care, to semi-independence of a supported flat with someone visiting daily or less often.

8.4 IB-PCA Considerations

In the IB-PCA, exemption may often be advised under the category of "**severe mental illness**" defined as…"**the presence of mental disease which severely and adversely affects a person's mood or behaviour, and which severely restricts his social functioning, or his awareness of his immediate environment."**

Many claimants who have schizophrenia or an atypical psychosis will have exemption advised during scrutiny and will not be called for an examination. However people with schizophrenia may not be able to express adequately their disabilities on the IB50 form, and there may be inadequate documentary evidence from general practitioners; hence the level of disability may not be apparent from the evidence available to the medical adviser scrutinising the file.

Currently a large proportion of claimants with schizophrenia seen for IB-PCA will fulfil the criteria for exemption on the basis of a severe mental illness. In the future, if the atypical neuroleptics fulfil their expectations of reducing social disability by reducing the negative symptoms of schizophrenia, then fewer claimants may be exempted.

In general, the review period of a claimant's exemption will depend on their history. The mean time to achieve a remission from a **first episode** of psychosis is 42 weeks[13], hence cases in which exemption is advised **do not merit review in less than 12 months**.

Following the first episode of psychosis, 22% of patients will achieve complete remission and may be capable of work; a further 35% will have an episodic remittent course and may be capable of work between relapses. Following a single episode of psychosis, in those **cases with no cognitive deficit** following resolution of the psychosis, **exemption should be reviewed regularly** initially, with exemption review advice of 12-18 months being appropriate.

Cases in which there has been a recent relapse should also have exemption advised for 12-18 months.

Following the first episode of psychosis, cases in which there is a **residual cognitive deficit** (episodic with stable deficit), or cases which show a **progressive cognitive deficit** with time (episodic with stable deficit), should be reviewed less frequently; **review advice of "not less than 2 years" or "in the longer term" is appropriate.**

If the condition is not so severe as to warrant exemption advice then the examiner will find that the functional limitations caused by schizophrenia may affect all four psychological functional areas; Completion of Tasks (CT); Daily Living (DL); Coping with Pressure (CP); and Interaction with Other People (OP). These effects will be detected by the mental health assessment using the clinical history, the typical day history, and the mental state examination.

Claimants attending with a carer, community psychiatric nurse (CPN) or community psychiatric social worker are likely to be exempt. Living in supported housing will indicate likely exemption and attendance at a day unit is also suggestive of a high level of social disability compatible with exemption.

Appendix A - Atypical Psychoses

Introduction

Atypical non-organic psychoses are a group of disorders that do not belong to the two major groups of psychoses: schizophrenia or the affective psychoses (bipolar illness).

There is confusion surrounding the definition of these disorders, with different names being given to the same disorder and the same name being given to dissimilar clinical conditions. However the disorders can be broadly divided into two groups:

1. **Schizoaffective disorders** in which symptoms of schizophrenia and affective psychosis occur in the same illness.

2. **Paranoid disorders** characterised by delusions in the absence of other features of psychosis.

The atypical psychoses are listed in table 1, together with the authority responsible for defining them. Where dissimilar conditions have the same name they are listed separately.

Table 1: Atypical Psychoses

Schizoaffective Group	
Schizoaffective disorder	ICD 10
Schizoaffective disorder	DSM IV
Schizophreniform	DSM IV
Brief Psychotic disorder	DSM IV
Acute Polymorphic Psychotic disorder	ICD 10
Paranoid (delusional) Disorders	
Acute Delusional Psychotic disorder	ICD 10
Persistent Delusional disorder	ICD 10
Delusional disorder • Erotomanic, • Grandiose, • Jealous, • Persecutory • Somatic	DSM IV

Schizoaffective Disorder

As many as 23 definitions of schizoaffective disorder have been identified[28]. The definitions provided by ICD 10 and DSM IV are generally used and these are compared in table 2.

Table 2: Comparison of Diagnostic Criteria for Schizoaffective Disorder

	ICD 10	DSM IV
Symptoms	Schizophrenic and affective symptoms simultaneously present, both prominent. At least one, preferably two schizophrenic symptoms	Major depressive or manic concurrent with Type A schizophrenic symptoms. At least 2 weeks of delusions and hallucinations without prominent mood disorder.
Course	Recurrent Manic defect unusual Depressive defect sometimes	Not included in criteria but in preamble, better than schizophrenia, worse than mood disorder. Tends to be chronic
Types	Manic, mixed, depressive Includes affective type of schizophreniform psychosis	Bipolar, depressive
Exclude	Patients with separate episodes of schizophrenia and affective disorder	Organic disorders, schizophrenia, psychotic mood disorders

Derived from Mellor[28]

The definition of schizoaffective disorder has varied so much that epidemiological data is of limited value. Best estimates give an **incidence of 2 cases per 100,000 per year** which is similar to that of mania[28]. Schizoaffective disorders are estimated to occur at 50-85% of the rate of schizophrenia, and so comprise a clinically significant population[29]. There are no epidemiological studies of prevalence for schizoaffective disorders.

The **clinical features** of schizoaffective disorder are:

- Relatively high levels of premorbid function;
- Median age of onset 29 years (>schizophrenia, <affective disorders);
- More common in females;
- 60% have a precipitating event, nature of event variable, may be physical (e.g. childbirth) or interpersonal (e.g. change in a relationship);
- Periodic, rapid onset of symptoms, degree of remission after weeks or months;
- Symptom clusters that are primarily affective or primarily schizophrenic may predominate at different times in the same patient;

- Some cases mainly resemble schizophrenia = schizophrenic type schizoaffective disorder, whilst others resemble mainly affective disorder = affective type schizoaffective disorder;
- Generally better course than schizophrenia, poorer course than affective disorder. However there are subgroups that resemble schizophrenia or affective disorders more closely;
- Levels of impairment intermediate between schizophrenia and affective disorder.

The management of the schizoaffective disorders is best considered by dividing them into two broad subtypes, according to symptom predominance.

Affective type schizoaffective disorder

- Antipsychotic medication e.g. clozapine, risperidone, olanzapine;
- Antidepressants, mood stabilisers (e.g. lithium) or anticonvulsants (e.g. valproate or carbamazepine).

Schizophrenic type schizoaffective disorder

- Antipsychotic medication alone often enough to treat affective symptoms;
- Treatment may be augmented with lithium or antidepressant medication;
- Electro-convulsive therapy may reduce mortality rates.

Poor prognostic features of schizoaffective disorder include:

- Poor inter-episode recoveries;
- Persistent psychotic symptoms in the absence of affective features;
- Poor premorbid social adjustment;
- Chronicity;
- Higher number of schizophrenia like symptoms.

Schizophreniform Psychosis

The term schizophreniform was first used in 1937 to identify those patients with schizophrenic symptoms who had a good prognosis.

Schizophreniform psychosis is a DSM IV diagnosis with the same diagnostic criteria for schizophrenia, however the total duration of the illness (prodrome, active phase and recovery) is of less than 6 months duration.

The ICD10 equivalent diagnosis is acute schizophrenia-like psychotic disorder (F23.2). Schizophreniform psychosis is included in ICD10 as a subtype of Schizophrenia.

The **epidemiology** of schizophreniform disorder has not been studied.

Clinically it is characterised by:

- Acute onset of psychotic symptoms;
- Confusion, disorientation and perplexity at the height of the psychosis.

The **treatment** of schizophreniform psychosis is as for schizophrenia. Large doses of antipsychotic medication may be needed initially. If symptoms return on reduction of antipsychotic medication, then the diagnosis is of schizophrenia.

For a **good prognosis,** the patient should have 2 of the following prognostic factors:[30]

- The psychotic symptoms appear within 4 weeks of the onset of the illness;
- Confusion, disorientation and perplexity;
- Good premorbid social and occupational functioning;
- The absence of blunted or flat affects.

Acute and Transient Psychotic Disorders

The heterogeneous group of acute and transient psychotic disorders are characterised by:

- Sudden onset (within 2 weeks or less);
- Presence of typical syndromes with polymorphic (changing and variable) or schizophrenic symptoms;
- Presence of associated acute stress (e.g. bereavement, job loss, psychological trauma etc).

Six categories of acute psychoses are presented in ICD 10, only two are discussed here.

1. Acute polymorphic psychotic disorder without symptoms of schizophrenia

Onset over a period of hours or days, no previous psychiatric disorder (except other similar episodes);

Often affects young adults, especially women in their thirties;

Active stages disappear completely in a few weeks or months, relapses can occur but there is no psychiatric disturbance between successive episodes.

Specific symptoms change from day to day and even from hour to hour and may include:

Polymorphic psychotic symptoms:

Varied delusional themes including grandeur, persecution, influence, possession, body transformation (depersonalisation), derealisation or world alteration. These themes change with time.

Other symptoms include hallucinations, illusions, interpretations and intuitions.
Mood changes:

As a consequence of the delusions, the patient experiences mood changes and emotional turmoil, manifesting as depression or euphoria (without reaching diagnostic criteria for affective disorders).

Confusion:

Consciousness fluctuates, there is a specific disorientation with respect to time and place and a 'dreamlike state'.

ICD10 criterion of duration of less than 1 month distinguishes it from schizophrenia and manic or depressive episodes. If resolution of symptoms has not occurred after 3 months, the diagnosis should be changed to persistent delusional disorder or non-organic psychotic disorder.

Follow-up of patients showed that 34% had a single episode, 24% had recurrent and transient episodes, 34% developed schizophrenia and 7% developed a periodic affective disorder. The relapse rate was higher in patients with no identifiable trigger factors[31].

2. Acute polymorphic disorder with symptoms of schizophrenia (F23.1)

This diagnostic category combines the symptoms of acute polymorphic psychotic disorder (above) with some typical symptoms of schizophrenia. F23.1 can be a provisional diagnosis which is changed to schizophrenia if the criteria persist for more than a month.

Historically, this has also been described as cycloid psychoses (an episode with clouding of consciousness and a marked alteration in thinking)[31].

The symptoms listed above are associated with some schizophrenic symptoms that are present most of the time.

- Passivity phenomenon; thought insertion, thought withdrawal, thought broadcast, made will, made actions, somatic passivity
- Hallucinations with commentary
- Catatonic behaviour
- Negative symptoms.

Cycloid psychoses have been reported to have a better prognosis than schizophrenia and schizoaffective disorders, and as the diagnostic criteria are the same, one can tentatively extrapolate this to the whole group.

Treatment of acute and transient psychotic disorders

Both typical and atypical antipsychotic drugs are used. Benzodiazepines may be used to produce rapid sedation. If mood disorders or cyclic episodes occur, treatment with antidepressants, mood stabilisers (lithium or valproate) or

anticonvulsants (carbamazepine) may be indicated.

Psychological therapies, social, and family therapies may all be used.

Persistent Delusional Disorders

A delusion may be loosely defined as a mistaken idea that is held unshakeably by the patient, and which cannot be corrected.

Delusional disorder (ICD10-F22 and DSM IV 297.1) is a psychotic disorder in which a stable and well-defined delusional system co-exists with a personality that retains many normal aspects. This is in contrast to schizophrenia where there is widespread disorganisation of personality in addition to psychotic features.

Delusional disorder is the name now applied to the illness previously known as paranoia.

Definition of delusional disorders (ICD10 F22.0)

a) A delusion or set of related delusions, other than those described as typically schizophrenic, must be present; the most common are persecutory, grandiose, hypochondriacal, jealous or erotic.

b) The delusion(s) must be present for at least 3 months.

c) The general criteria for schizophrenia are not fulfilled.

d) There are no persistent hallucinations, but there may be transitory or occasional auditory hallucinations that are not speaking in the third person or making a running commentary.

e) Depressive symptoms or episodes may be intermittently present, but the delusional symptoms must persist at times when there is no disturbance of mood.

f) There must be no evidence of primary or secondary organic mental disorder or of a psychotic disorder due to psychoactive substance use.

Subtypes: persecutory, litigious, self-referential, grandiose, hypochondriacal, jealous, erotomanic.

There have been no detailed epidemiological studies, and as only markedly abnormal behaviour brings the patients to psychiatric attention, it is probably underestimated. The prevalence is thought to be about 0.03% and the lifetime risk 0.05-0.1% (i.e. one tenth that of schizophrenia)[28].

The age of onset is commonly 40-55 years, however cases have been described from late adolescence. The sex ratio appears to be equal. Male patients appear to have a younger age of onset[32].

The condition can be compatible with marriage and continued employment[32].

Patients with delusional disorder rarely complain directly of their delusions and are often presented to psychiatric services by their families, or as a result of some legal

process. An independent account of the illness from someone who knows the patient well is a necessity, especially if the delusional content is 'culturally acceptable'.

The premorbid personality is often asocial and there may be an excess of schizoid and paranoid personality disorders. However in some cases the 'personality disorder' may be a prodrome of the illness and resolves when the patient recovers[32].

The onset may be gradual or acute.

All cases of delusional disorder occur in clear consciousness and have a stable and persistent delusional system. Within the delusional context, the patient has a heightened sense of self-reference, and ordinary events take on extraordinary significance. Patients' delusional beliefs are unshakeable, and they deny any mental illness. The patient is able to move from normal to delusional modes of thinking with ease.

Delusional disorder is usually categorised according to the delusional content.

Erotomania (de Clerambault's syndrome): the patient believes that a particular person is in love with them. When the 'lover' rejects approaches, further delusional elaborations occur. This is more common in women, however male sufferers present major forensic problems. Legal remedies have little effect on the patients' beliefs and do not alter behaviour.

Grandiose: patients have erroneous and extravagant delusional beliefs about themselves that may include social status, wealth, intellectual powers and spiritual gifts.

Jealous (Othello syndrome): This is characterised by the delusion that a partner (usually a spouse) has been unfaithful. Morbid jealousy is a general term for pathological jealousy that may be a symptom of psychiatric conditions other than delusional disorder (commonly alcoholism). Morbid jealousy is not always delusional. Patients will consistently question their partner as they seek evidence to support the delusion. The condition is difficult to treat and tends to recur with a new partner. It should be suspected in cases of domestic violence.

Persecutory: The patients are usually the subject of the persecution, but occasionally it is someone close to them. The delusional system is very well organised. Frustrated that the proper authorities take no action, patients may attempt to expose their 'persecutors' in a public forum such as the law courts or 'letters to the editor'.

Somatic: delusions of physical abnormality or of a physical disorder characterise this subtype. The delusional content may be of size or form (delusional dysmorphophobia), illness, infestation, and leaking smells and secretions from bodily orifices (monosymptomatic hypochondriacal psychosis).

The first aim in the management of delusional disorders is to achieve a therapeutic relationship with a patient who does not want to participate in psychiatric treatment. Patients are often angry and hostile to those responsible for their entry into

treatment, and these feelings may be extended to psychiatric staff.

Although the current evidence supports the use of pimozide as the antipsychotic of choice for delusional disorders, concerns have been raised regarding its cardiotoxic side effects, and some psychiatrists prefer to use the atypical antipsychotics, risperidone or olanzapine.

As it is a chronic condition, long-term maintenance treatment is required. It is estimated that a third of patients will be able to discontinue their medication. Unfortunately, this group cannot be identified prospectively.

Psychotherapy and counselling have a limited role in therapy and there is no evidence that psychological methods by themselves can eliminate delusions[32].

Persistent delusional disorders are **chronic, probably lifelong conditions**. They have previously had a reputation for being untreatable, as many patients are unwilling to accept that they have a mental disorder or that they require psychiatric treatment. However if they can be persuaded to co-operate and accept treatment, the conditions respond in a large proportion of cases[32].

Appendix B - Glossary and Diagnostic Criteria

Schneider's First Rank Symptoms

1. Voices commenting
2. Voices arguing or discussing
3. Audible thoughts
4. Thought broadcast
5. Thought withdrawal
6. Thought insertion
7. Made will
8. Made acts
9. Made affect
10. Somatic passivity
11. Delusional perception

Symptomatology: Glossary

Abnormal Perceptions

Hallucinations are sensory perceptions in the absence of external stimuli and are commonly auditory.

a) ***Second person*** voices address the patient directly.

b) ***Third person*** voices address the patient in the third person.

c) ***Running commentary*** voices describe his/her actions as they occur, referring to him/her in the third person.

d) ***Thought Echo (Audible Thoughts)*** voice repeats patient's thoughts either simultaneously or after a brief delay.

Olfactory and visual hallucinations may occur, but are not diagnostic.

Abnormal Thoughts

Delusions are false beliefs, based on incorrect inference about reality, that are inconsistent with the patient's educational and cultural background and are not amenable to reasoning

a) ***Persecutory delusions***: the belief that one is harassed or persecuted.

b) ***Delusions of reference***: the belief that events, objects or the behaviour of others, refer to oneself.

c) ***Delusions of control***: the belief that external forces control one's thoughts, emotions or movements.

d) ***Delusional Perception***: the attribution of abnormal significance, usually with self-reference, to a genuine perception, without any understandable rational or emotional justification.

Delusions of persecution and of reference have little diagnostic specificity but are common in schizophrenia.

Thought Disorder

Disorders of thought process are inferred from abnormalities observed in the spoken and written language of the patient.

a) ***Loosening of associations:*** the logical associations between the ideas expressed are loose or incomprehensible; when severe, speech becomes incoherent.

b) ***Poverty of content of speech:*** speech is sufficient in amount, but conveys little information due to vagueness, stereotypy or repetition.

c) ***Thought block:*** a sudden interruption in the train of thinking.

Passivity Phenomena

a) ***Thought Insertion:*** the experience of thoughts that are not one's own, being inserted into one's mind.

b) ***Thought Withdrawal:*** the experience that thoughts are removed from one's mind.

c) ***Thought Broadcasting:*** the experience that one's thoughts are broadcast so that others might share them.

d) ***Made Will:*** the patient is impelled by an impulse to act, which is experienced as arising from an alien source.

e) ***Made Actions:*** the patient experiences his actions as being executed by an external influence, such that he is a passive observer of his own actions.

f) ***Made Affect (Made Feelings):*** feelings are experienced as being imposed by an external agency.

g) ***Somatic Passivity:*** the experience of external influence over bodily functions.

Abnormal Affect

a) ***Blunted Affect:*** a failure to express feelings verbally or non-verbally even when talking about issues which would normally engage the emotions.

b) ***Incongruous affect:*** a qualitative abnormality in which the affective response is incompatible with the ideas or thoughts expressed.

Disorders of Volition

a) ***Weakened volition:*** manifests as a lack of spontaneous motor activity, often accompanied by a lack of spontaneity in speech and affect.

b) ***Disjointed volition:*** characterised by over-activity in an ill-directed manner, resulting in a reduced ability to resist impulses to act.

c) ***Catatonic Stupor:*** immobility and apparent unawareness of surroundings.

d) ***Catatonic Excitement:*** intense, purposeless and disorganised activity.

e) ***Stereotypy:*** repeated purposeless patterns of actions.

f) ***Waxy flexibility:*** sustaining for a prolonged period of time the position in which the body or limbs are placed.

g) ***Echopraxia:*** pathological automatic imitation of another person's movements.

h) ***Negativism:*** automatic resistance to instructions or attempts at movements.

ICD10 Diagnostic Criteria for Schizophrenia

A minimum of **one very clear symptom belonging to groups (a) to (d) below or symptoms from at least two of the groups (e) to (i)** below.

For most of the time, during a period of **one month or more:**

a) Thought echo, thought insertion or withdrawal, and thought broadcasting;

b) Delusions of control, influence or passivity, clearly referred to body or limb movements or specific thoughts, actions or sensations; delusional perception;

c) Hallucinatory voices giving a running commentary on the patient's behaviour, or discussing the patient among themselves, or other types of hallucinatory voices coming from some part of the body;

d) Persistent delusions of other kinds that are culturally inappropriate and completely impossible, such as religious or political identity, or superhuman powers and abilities (e.g. being able to control the weather, or being in communication with aliens from another world);

e) Persistent hallucinations in any modality, when accompanied either by fleeting or half-formed delusions without clear affective content, or by persistent overvalued ideas, or when occurring every day or for weeks or months on end;

f) Breaks or interpolations in the train of thought, resulting in incoherence or irrelevant speech or neologisms;

g) Catatonic behaviour, such as excitement, posturing or waxy flexibility,

negativism, mutism, and stupor;

h) "Negative" symptoms such as marked apathy, paucity of speech, and blunting or incongruity of emotional responses, usually resulting in social withdrawal and lowering of social performance; it must be clear that these are not due to depression or antipsychotic medication;

i) A significant and consistent change in the overall quality of some aspects of personal behaviour, manifest as loss of interest, aimlessness, idleness, a self-absorbed attitude and social withdrawal.

The diagnosis of schizophrenia should not be made in the presence of extensive depressive or manic symptoms unless it is clear that the schizophrenic and affective symptoms antedated the affective disturbance.

If both schizophrenic and affective symptoms develop together and are evenly balanced, the diagnosis of schizoaffective disorder should be made, even if the schizophrenic symptoms alone would have justified the diagnosis of schizophrenia.

DSM IV Diagnostic Criteria for Schizophrenia

A. *Characteristic symptoms:* Two (or more) of the following, each present for a significant portion of time during a 1-month period (or less if successfully treated):

   1) Delusions
   2) Hallucinations
   3) Disorganised speech (e.g. frequent derailment or incoherence)
   4) Grossly disorganised or catatonic behaviour
   5) Negative symptoms, i.e. affective flattening, alogia or avolition.

   Note: Only one criterion A symptom is required if delusions are bizarre or hallucinations consist of a voice keeping up a running commentary on the person's behaviour or thoughts, or two or more voices conversing with each other.

B. *Social/Occupational dysfunction:* For a significant portion of time since the onset of the disturbance, one or more major areas of functioning such as work, interpersonal relations, or self-care are markedly below the level achieved prior to the onset (or when the onset is in childhood or adolescence, failure to achieve the expected level of interpersonal, academic or occupational achievement).

C. *Duration:* Continuous signs of the disturbance persist for at least 6 months. This 6 month period must include at least 1 month of symptoms (or less if successfully treated) that meet criterion A (i.e. active phase symptoms) and may include periods of prodromal or residual symptoms. During these prodromal or residual periods, the signs of the disturbance may be manifested by only negative symptoms, or two or more symptoms listed in Criterion A, presented in an attenuated form (e.g. odd beliefs, unusual perceptual experiences).

D. *Schizoaffective and mood disorder exclusion:* Schizoaffective disorder and mood disorder with psychotic features have been ruled out because either (1) no major depressive, manic or mixed episodes have occurred concurrently with the active-phase symptoms; or (2) if mood episodes have occurred during active-phase symptoms, their total duration has been brief relative to the duration of the active and residual periods.

E. *Substance/general medical condition exclusion:* The disturbance is not due to the direct physiological effects of a substance (e.g. a drug of abuse, a medication) or a general medical condition.

F. *Relationship to a pervasive developmental disorder:* If there is a history of autistic disorder or another pervasive developmental disorder, the additional diagnosis of schizophrenia is made only if prominent delusions or hallucinations are also present for at least a month (or less if successfully treated).

Appendix C - Aetiological Factors

Neuropathological changes in schizophrenia

Whole Brain Changes

- MRI studies have shown significant reduction in cerebral volume in schizophrenia, more marked in the temporal lobes.
- This decrease in cerebral volume is not necessarily accompanied by decreases in other brain regions (e.g. midbrain and pontine areas may show increases)[6].

Ventricular System

- Enlargement of lateral and third ventricles;
- Ventricular volume increased by approximately 40%; increases may be more pronounced on the left side;
- Changes may be more prominent in male patients;
- Possible association with impaired performance on neuropsychological tests and negative symptoms;
- A poor prognostic factor.

Frontal and Temporal Lobes

- Show a consistent reduction in volume;
- Temporal lobe abnormalities more pronounced in males and in those with familial schizophrenia[6].

Limbic Structures

- The volume of the hippocampus and the amygdala is reduced bilaterally by 4.5-10%;
- Reductions in the parahippocampal gyrus in the region of 9-14% have been reported. These volume reductions are the largest reported of any brain area.

Basal Ganglia

Contradictory results from studies, probably due to the effect of neuroleptics, which increase basal ganglia volume.

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