

By Dr Ingé Smit
Psychiatrist
Cape Town
ingesmit@sun.ac.za

SCHIZOPHRENIA:

What really happens?

Mr X was diagnosed with Schizophrenia at the age of 19. At that time he was a second year engineering student, lived in a university residence and was actively involved in extramural activities, including playing rugby and cricket. Mr X led a healthy lifestyle and didn't smoke any illicit substances, but unfortunately for him he has a strong family history of Schizophrenia. Although both his parents and two sisters are unaffected, he has a maternal grandmother and aunt with the disorder. When he initially presented he had a two months' history of change in behaviour that included hearing voices telling him to hurt others and delusions that the FBI were surveilling him, as well as a significant decline in academic performance, leading to an admission to a psychiatric hospital for stabilisation.

Mr X is now 30 years old and in the past decade required 2 subsequent admissions for episodes of relapse. He's currently unemployed and receives a disability grant. He lives in a group home with full time supervision and goes home to visit his parents every weekend. The story of Mr X and his functional decline is unfortunately one we know all too well.

So what is Schizophrenia?

Schizophrenia is a Psychotic Disorder, in fact the commonest of all the Psychotic Disorders, affecting about 1% of the general population.¹ The causes are numerous and often difficult to determine in individual patients, but includes genetic factors such as heritability (as in the case of Mr X) and non-familial genetic abnormalities, or environmental causes such as adverse events during pregnancy, birth or early childhood, certain infections or certain substances use. According to Dr Stephen M Stahl¹ the symptoms of Schizophrenia can be divided into five clusters. The first is 'positive symptoms' and these include hallucinations and delusions. The second is 'negative symptoms' including:

- Emotional withdrawal
- Passivity
- Lack of spontaneity
- Lack of experiencing pleasure from activities
- Poor attention
- Impairment in emotional expression (blunted affect)

The last three categories are not part of the formal diagnostic criteria for schizophrenia, but are cognitive symptoms, aggressive symptoms and affective symptoms. Although Schizophrenia has a heterogeneous outcome the overall burden remains high at present on patients themselves, on their caregivers and on the community.

How are the symptoms of Schizophrenia created by the brain?

The brain is arguably the most complex organ in the human body. It's made up of millions of brain cells (or neurons) arranged into clusters, each cluster having a unique purpose, but functioning in constant communication with other clusters and therefore a change in activity in one cluster inevitably impacts all the others. Dopamine is a neurotransmitter (or messenger) that functions between the different neurons and brain clusters. It has long been hypothesised that an abnormality in function of dopamine (too much in some areas of the brain and too little in others) is the driving force for the production of the symptoms of Schizophrenia, but more recently scientists have started looking at other possible factors such as abnormalities of glutamate (another neurotransmitter) and its receptors (the 'post box' for the 'messenger') and the role of neurodevelopment and neurodegeneration in the brain.

As in the case of Mr X, patients often present for the first time or for subsequent episodes due to the positive symptoms of schizophrenia that causes imminent risk to the patients themselves or to others. Current medications also mostly target these positive symptoms and once the positive symptoms have abated we're satisfied the patient has responded. However, it's clear from over 50 years of antipsychotic use that treating only the positive symptoms of Schizophrenia does (in most cases) not improve the patients function and long term outcome.



With regards to function we expect the average adult to finish school and maybe go on to study further, to gain employment and be financially self-sufficient, to be able to live independently and care of oneself (including activities of daily living). We'd also expect a person to have good interpersonal functioning, to make long term friends, to marry, have children and partake in community activities. Such a person should have a high quality of life, experience self-respect and have hope. In contrast to this we find that this is not the case in most patients with Schizophrenia, as with Mr X.

This lack of function can be attributed to the other symptom clusters of Schizophrenia, especially the negative, cognitive and affective symptoms. Even though the positive symptoms are controlled the patient may not



finish school due to poor attention and low motivation. He may not experience satisfying vocational and recreational activities due to subtle cognitive deficits such as poor memory or abstract thinking. A patient with Schizophrenia is often unable to live independently and needs help with remembering to take medication and to attend doctor's appointments or even manage comorbidities such as insulin dependent diabetes.

How the Schizophrenic patient sees the world

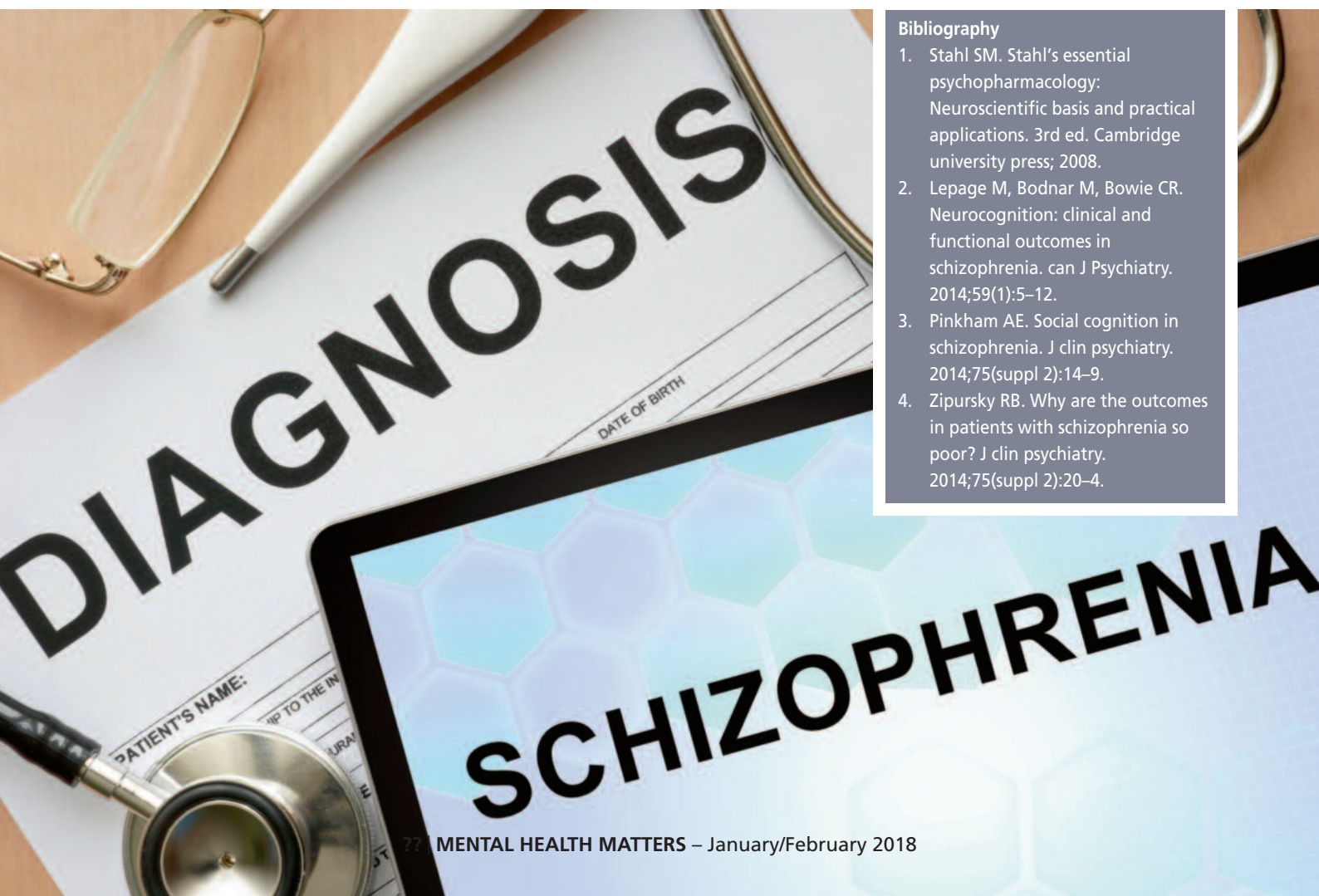
Quality of life is also often impaired² due to feelings of depression or worthlessness aggravated by stigma. The concept of social cognition³ has experienced significant attention in recent literature for its role in functional impairment. It's needed to be able to perceive and use emotional information (for example seeing a person smiling and knowing the person is therefore happy), to interpret social cues (seeing two people interact and knowing that it's a romantic relationship), making inferences about others (understanding that your friend looking at your ice-cream also wants some) and being able to make sense of social events (understanding that if a person does not return your call that he might be busy). All of these are clearly needed in all interpersonal encounters whether at work, socialising or at home. Functional impairments are expected to increase over time as early difficulties may limit the acquisition of more advanced skills, both academic and social.⁴

It's clear from this that a person's outcome (and recovery) in Schizophrenia is thus not only dependent on the control of the positive

symptoms and the accompanying possible aggression (with the help of medication adherence and side effect management, substance abstinence and stress management), but also the negative, affective and especially the cognitive symptoms.

Unfortunately, the latter is currently not an easy fix with psychopharmacology, but rather management of these symptoms should be aggressive early on in the disease process and should include robust attention to Psycho-Social Rehabilitation. This includes support to the patient, but also to the usually overburdened caregivers and family, education to the patient and family about the illness, opportunities for skill remediation (including schooling, vocation and social) and Psychotherapy as appropriate for affective and cognitive symptoms.

MHM



Bibliography

1. Stahl SM. Stahl's essential psychopharmacology: Neuroscientific basis and practical applications. 3rd ed. Cambridge university press; 2008.
2. Lepage M, Bodnar M, Bowie CR. Neurocognition: clinical and functional outcomes in schizophrenia. *Can J Psychiatry*. 2014;59(1):5-12.
3. Pinkham AE. Social cognition in schizophrenia. *J clin psychiatry*. 2014;75(suppl 2):14-9.
4. Zipursky RB. Why are the outcomes in patients with schizophrenia so poor? *J clin psychiatry*. 2014;75(suppl 2):20-4.