By Dr Antoinette Miric
Psychiatrist
Johannesburg, Gauteng
doctor@dramiric.co.za

COGNITIVE IMPAIRMENT IN BIPOLAR DISORDER

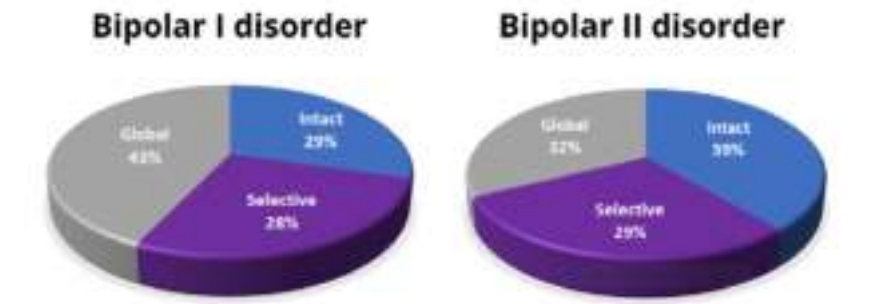
Bipolar disorder frequently affects patients' cognitive processes. *'I can't focus for longer than 15 minutes'*, *'I keep forgetting words'*, and *'I'm unable to multitask'* are common complaints heard by mental health care practitioners. Within an episode of depression, hypomania or mania, cognitive changes are expected and are part of the disease process. The medications used to stabilise mood states can influence cognition along with lifestyle factors and medical comorbidities. While some people only experience cognitive difficulties during an episode or while remitting, a subset may have long-lasting cognitive deficits.

A neuropsychological study by Burdick et al. in 2014 looked at patients who were stable and had a diagnosis of either bipolar I or II disorder. The researchers performed a full neurocognitive battery on all participants. They found three distinct neurocognitive statistically significant subgroups in both the bipolar I and II patients.

- The first group was *intact* and had a cognitive performance compared to healthy controls but had superior social cognition.
- The second group showed *selective* impairment in cognitive abilities, notably in processing speed, attention, verbal learning, and social cognition.
- Significantly the last group showed *global* impairments across all cognitive domains. The impairments in this last group were comparable to those found in schizophrenia.

Three distinct categories of cognitive impairments in bipolar I and bipolar II disorder can be seen in Figure 1. Bipolar I affected

FIGURE 1



Percentages of patients with either Bipolar I or Bipolar II who have are intact or who have selective or global cognitive impairment.

FIGURE 2: THE COGNITIVE PYRAMID – FROM ISBD 'COGNITION IN BIPOLAR DISORDER' BOOKLET

individuals are more likely to have more significant neurocognitive difficulties (43%) compared to individuals with bipolar II (32%).

A useful resource for patients and practitioners is the 'Cognition in Bipolar Disorder' booklet found on the www.isbd.org website. This booklet describes the basic components of cognition in a 'cognitive pyramid' where some aspects of cognition build on others. The pyramid in Figure 2 shows that if the bottom two rungs of the pyramid are affected, (motivation and wakefulness, and mental processing speed) it's incredibly difficult for the other areas to function optimally. Although 'motivation and wakefulness' aren't cognitive functions as such, they're needed for optimal functioning.

COGNITIVE CHANGES DURING EPISODES OF BIPOLAR DISORDER

Using the above pyramid, we can start to understand the cognitive changes within episodes. During a bipolar depressive episode that can last weeks to months, one of the core struggles is motivation and wakefulness. There is a decreased energy, increased desire to sleep, and low motivation to do the most basic tasks (dressing, washing, or shopping). Thought speed slows down, and it takes a long time to process incoming information. The impact on these lower levels will have a knock-on effect on higher levels of this 'cognitive pyramid.'

During hypomania or mania, initially, there is an increase in motivation and wakefulness, which is quite exhilarating for some individuals. However, it can soon spiral into an agitated state. In this state, thought speed is fast, resulting in impairment in attention and memory tasks due to internal and external distractions. Although motivation may be present, insight and judgment are often impaired, resulting in impulsive high-risk behaviours. Increased wakefulness results in less need for sleep and increased physical activity. This state is not sustainable and results in physical complications and emotional exhaustion associated with manic episodes.

COGNITIVE CHANGES DUE TO MEDICATIONS AND LIFESTYLE EFFECTS

Psychotropic medications are notorious for causing adverse cognitive effects. However, they are often necessary and often needed in relatively high doses to treat an episode and maintain a euthymic state. Some medications have fewer cognitive effects, and some patients do not experience these side effects. Antipsychotics, benzodiazepines, and antiepileptic medications often cause some cognitive difficulties. Cognitive side effects need to be discussed with the treating psychiatrist, and the individual's medication can be optimised.

Lack of exercise, poor dietary and sleep patterns, and comorbid medical illnesses also increase mental struggles in individuals with bipolar disorder. The difficulties in maintaining a healthy lifestyle and the use of recreational drugs and alcohol abuse are also compounding factors. Comorbid medical conditions commonly found in individuals with bipolar disorder such as metabolic syndrome, hypertension, diabetes, and cardiovascular disease may also impact the brain and contribute to cognitive difficulties.

COGNITIVE CHANGES WHILE RECOVERING

"Ms A with known bipolar disorder recently had a manic, psychotic episode, which resulted in her staying up for three nights in a row, painting multiple canvases. Her family realised she wasn't sleeping and wasn't well, and contacted her psychiatrist, Dr X. Ms A was voluntarily admitted to hospital. To decrease the activation and allow her to sleep, Ms. A needed Olanzapine 20mg a day and Lorazepam up to 8mg a day for about 7 days. She was already taking Lithium and Lamotrigine. Her mood settled down and swung into a low, depressed space. She was well enough to be discharged after fourteen days and presents to her psychiatrist Dr X,

three weeks after the initial episode. She reports feeling very low, is very forgetful, and her family says she is lazy and can't even prepare a meal.'

This scenario is common and emphasises the importance of psychoeducation of both the individual with bipolar disorder and their family members. A 'brief' episode like this can set someone with bipolar disorder back for a few months, as their brain and associated cognitive impairment recover from the initial episode. In the early to mid-stages of recovery, cognitive function is often impaired due to both the illness itself and the medication needed to treat the episode. Individuals and families need to be informed that the medication treating the episode may also affect their cognition temporarily. However, if the medication is not used, the episode could not resolve.

In addition, even if the medication effect is minimised by careful dosing and selection, it still takes time after a relapse, for cognitive function to be reestablished. Psychoeducation of the patient and family needs to occur, to prevent unrealistic expectations during this time. Time is required for the brain to recover from episodes of bipolar disorder. It frequently takes weeks to months to recover from severe episodes.

Frequent episodes, which are seen in non-compliant patients or poor treatment responders, worsen the cognitive prognosis. In the study mentioned above, individuals with more episodes, both manic or depressive, were more likely to have either selective or global impairment in cognitive functioning even when stable.

TREATMENT OF COGNITIVE DYSFUNCTION IN BIPOLAR DISORDER

Psychoeducation in all aspects of bipolar disorder and especially around cognitive dysfunction is vital. Not all patients will become cognitively impaired in the long term. Patients with bipolar disorder need to understand the mental struggles which the illness may cause on a temporary or permanent basis. Psychoeducation is needed around relapse prevention, stress management, and understanding the importance of maintaining a healthy lifestyle. This knowledge can help empower individuals with bipolar disorder and help them gain control over the illness trajectory.

Cognitive dysfunction in individuals with bipolar disorder needs to be prevented, remediated, and treated. The table below indicates some preventative strategies.

• Prevention of relapse with effective pharmacotherapy and implementation of psychoeducation programs
• Avoid medications that interfere with cognitive function
• Achieve remission after acute episodes and treat subclinical depressive symptoms
• Treat comorbidities (eg substance use, ADHD, obesity, and hypothyroidism)
• Implement cognitive or functional remediation
• Healthy habits (diet, exercise, improve sleep, no smoking)
• Aerobic physical exercise

Table 1: Suggested prevention strategies in cognitive dysfunction in bipolar disorder (edited from Solé et al).

Functional remediation with a focus on cognitive remediation and psychosocial functioning is needed. Bipolar patients with cognitive difficulties can be referred, and their specific challenges should be assessed by either an occupational therapist or neuropsychologist. Both of these mental health care practitioners can intervene and advise on nonpharmacological management.

The pharmacological treatment of cognitive impairment is an important area of future research, and at this stage, there are no approved pro-cognitive enhancers for use in this patient population.

CONCLUSION

Individuals with bipolar disorder may experience cognitive dysfunction, both when unwell and inter-episodically. Research has shown that there is heterogeneous cognitive impairment in individuals with bipolar disorder, with some showing no dysfunction, some selective dysfunction, and others global dysfunction. It's important to emphasise to our patients that cognitive decline is not inevitable; however extra attention needs to be paid to this area of functioning. All patients with bipolar disorder need to be educated about their condition and potential cognitive difficulties. This knowledge will allow them to focus on modifiable factors such as relapse prevention, compliance to medication, optimising medical comorbidities, and living a healthy lifestyle. MHM

References available upon request