



Image: ©freshidea - Fotolia - adobe.stock.com

SCHIZOPHRENIA Factsheet

March 2022

What is information processing?

Information processing involves a number of cognitive functions, including perception, attention, memory and decision making, as well as the speed at which these cognitive functions are executed. Any impairment in information processing can reflect impairments in these other cognitive domains. Information processing can be assessed using various tests. The Wechsler Adult Intelligence Scale (WAIS) digit symbol coding test presents participants with paired numbers and symbols and when shown several numbers, participants must write down the missing corresponding symbols as quickly as possible. The Wisconsin Card Sorting Task (WCST) requires an ability to shift cognitive sets; participants are asked to match stimulus cards, with feedback provided as to whether the match was correct or incorrect based on a colour, quantity, or design rule that changes during the task. The Trail Making Test (TMT) requires participants to connect, in order, letters and/or numbers as quickly as possible. The Stroop Colour Word Test (SCWT), presents colour names printed in an ink congruent to the colour name (e.g. blue), or incongruent to the colour name (e.g. blue). Participants are asked to either read the word or name the ink colour. Category fluency is an oral test that requires participants to name as many items in a category (e.g. furniture items) as they can in one minute. The Stockings of Cambridge (SOC) planning task requires participants to mentally plan a sequence of moves in order to complete a task in the fewest number of moves.

What is the evidence for information processing?

Compared to people without schizophrenia, high quality evidence shows a large effect of poorer information processing in people with first-episode or chronic schizophrenia. Moderate to high quality evidence finds no differences in initial thinking time, but more subsequent thinking time on the SOC task.

Moderate to high quality evidence also found a large effect of slower processing speed in people at high risk who converted to psychosis compared to controls, and a small effect in non-converters compared to controls. There was slower processing speed in people with first-episode psychosis than in people at clinical high-risk of psychosis.

Compared to people with affective psychoses (including bipolar disorder and schizoaffective disorder), moderate to high quality evidence finds small effects of poorer information processing on the TMT and WCST tasks.

Moderate to high quality evidence finds a medium-sized association between better information processing and better community functioning, and weak associations between better information processing and better emotion processing and less severe symptoms. High quality evidence found a small impairment in speed of processing in smokers vs. non-smokers with schizophrenia. Moderate to high quality evidence suggests better speed of processing in people with schizophrenia with any substance use disorder compared with people with schizophrenia without any substance use disorder.

There were greater improvements in processing speed in patients taking second-generation antipsychotics than patients taking first-generation antipsychotics. Patients taking olanzapine, clozapine or risperidone showed improvements in processing speed after treatment, while patients taking quetiapine or haloperidol showed no improvement.

For further information see the technical table



NeuRA (Neuroscience Research Australia) is one of the largest independent medical and clinical research institutes in Australia and an international leader in neurological research.

Diseases of the brain and nervous system pose the greatest health, economic and social burden of any disease group because they are chronic, debilitating and have no known cures.

Medical research is the cornerstone of efforts to advance the health and wellbeing of families and the community. Our dedicated scientists are focussed on transforming their research into significant and practical benefits for all patients.

While we hope you find this information useful, it is always important to discuss any questions about schizophrenia or its treatment with your doctor or other health care provider.

HOW YOUR SUPPORT HELPS

We are able to make significant advances due to the generosity of countless people. Your donation allows us to continue to work towards transforming lives. For information on how you can support our research, phone **1300 888 019** or make a secure donation at neura.edu.au/donate.