



SCHIZOPHRENIA Factsheet

March 2022

What is learning in schizophrenia?

Learning is the ability to acquire, or change, existing knowledge, behaviours or skills. There are two distinct forms of learning: explicit (or declarative) learning occurs during a high level of consciousness regarding specific learnt content, for example, memorising information for an exam. Implicit (or procedural) learning is less conscious and refers to learning which is gained from task performance, for example, juggling. Explicit verbal learning can be measured with the Hopkins Verbal Learning test, the California Verbal Learning test and verbal list-learning. The Brief Visuospatial memory test, the Rey design learning test, the Rey complex figure test, and visual reproduction all measure explicit visual learning. Implicit learning can be measured using the Serial Reaction Time task where learning is inferred from reduced reaction time to stimuli.

What is the evidence for learning?

Compared to people without schizophrenia, moderate to high quality evidence finds medium to large effects of poorer verbal learning, verbal memory, verbal paired associate learning, verbal recognition, and Serial Reaction Time performance in people with schizophrenia. There were small to medium-sized associations between more severe negative and disorganised symptoms and poorer visual and verbal learning.

In people at clinical high-risk of psychosis, moderate to high quality evidence finds medium-sized effects of poorer verbal and visual learning compared to controls. Moderate quality evidence finds small to medium-sized effects of poorer visual learning, with no differences in verbal learning, in people at clinical high-risk of psychosis who transitioned to psychosis compared to people at clinical high-risk of psychosis who did not transition to psychosis.

Compared to people with bipolar disorder, moderate to high quality evidence finds medium-sized effects suggesting people with schizophrenia show impaired performance on verbal and visual learning tasks. There was a medium-sized effect suggesting people with schizoaffective disorder also show impaired performance on verbal learning tasks compared to people with bipolar disorder. Small effects suggest people with schizophrenia show impaired performance on verbal and visuospatial learning tasks compared to people with schizoaffective disorder.

Overall, moderate to high quality evidence finds greater improvements in explicit learning, but not implicit learning, with second-generation antipsychotics than with first-generation antipsychotics. Specifically, second-generation olanzapine, clozapine and risperidone, and first-generation haloperidol show improvements in explicit learning.

Moderate to high quality evidence showed small associations between better verbal learning and better community functioning, social behavior, problem-solving and social skills. Moderate to low quality evidence finds better verbal learning is also associated with better work capacity.

High quality evidence found a small impairment in learning in smokers vs. non-smokers with schizophrenia. Moderate to high quality evidence suggests a small effect of better verbal learning and memory in people with a psychotic disorder and a substance use disorder than people with a psychotic disorder without a substance use disorder.

For further information see the technical table



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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.

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