

SCHIZOPHRENIA Factsheet

March 2022

What is reasoning?

Reasoning refers to the ability to logically gather information to form conclusions and solve problems. People with schizophrenia may show impaired reasoning, with bias in the way they gather information, interpret events and develop beliefs. Reasoning bias is usually measured in three ways: “jumping to conclusions” (JTC) is when a decision is made after little information is gathered; belief inflexibility is an inability to change a belief even when presented with disconfirmatory or confirmatory evidence (BADE/BACE); and attribution bias is when available evidence is incorrectly used to attribute negative or positive events to internal or external causes. Liberal acceptance (LA) can also be measured, which involves overrating the plausibility of absurd interpretations.

What is the evidence for reasoning bias?

High quality evidence finds a medium-sized association between more severe delusions and more belief inflexibility. Moderate to high quality evidence finds medium to large effects of more JTC, BADE, BACE, and LA in people with schizophrenia with current delusions than in controls. In people with schizophrenia without delusions there were small to medium-sized effects of more BADE and LA, with no differences in JTC or BACE. When directly comparing people with schizophrenia with or without delusions, high quality evidence finds small to medium-sized effects of more JTC, BADE, BACE, and LA in those with delusions. There were no differences in JTC, BADE, BACE, and LA between people with schizophrenia with delusions and people with other psychiatric disorders with delusions, however when compared to people with other psychiatric disorders without delusions, there were medium to large effects of more JTC, BADE, BACE and LA in people with schizophrenia with delusions. A medium-sized effect suggests people with schizophrenia show impaired performance on reasoning and problem-solving tasks compared to people with bipolar disorder.

Moderate to high quality evidence finds small to medium-sized effects that people with schizophrenia can require less information to form conclusions and show more extreme responding (JTC) compared to controls and compared to people with nonpsychotic mental disorders. There were no differences in overall reasoning and problem solving ability between people with schizophrenia taking first or second-generation antipsychotics.

Small associations were found between better reasoning ability and less severe negative, disorganised, and reality distortion symptoms. There were medium to strong associations between better reasoning ability and better problem solving, verbal learning, processing speed, working memory, attention, vigilance, and verbal fluency. There were small to medium-sized associations between better reasoning ability and better social skills, community functioning, emotion perception, social perception, facial recognition, and emotion processing.

Moderate to high quality evidence shows a medium-sized effect of poorer reasoning and problem-solving in people at clinical high-risk for psychosis compared to controls. There was a medium-sized effect of poorer reasoning ability in people at high-risk for psychosis who converted to psychosis compared to controls, and a small effect in those who did not convert to psychosis compared to controls. High quality evidence found a small impairment in reasoning and problem solving in smokers vs. non-smokers with schizophrenia. However, moderate quality evidence found better problem solving and reasoning ability in people with schizophrenia with a cannabis use disorder compared to people with schizophrenia without any substance use disorder.

For more 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.