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Cognitive Biases and Social Cognition in Schizophrenia Spectrum Patients with Delusions and Hallucinations

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Delusions and hallucinations are related to poor social functioning, the most important indicator of outcome in schizophrenia. Cognitive models of psychosis implicate reasoning biases and social cognition impairments in the development and maintenance of psychotic symptoms. Social cognition has an impact on social functioning, and this relationship is mediated by neurocognition.

An abundance of research has demonstrated that patients with delusions show reasoning biases and social cognitive impairments. Although delusions and hallucinations often co-occur, suggesting common underlying mechanisms, studies investigating hallucinations are still lacking. This study examined the jumping to conclusions bias, theory of mind, and the attribution styles in patients with delusions and hallucinations and their relationship with sociodemographic data, psychopathology, and neurocognition.

The analyses demonstrated that JTC bias is neither associated with delusions nor with hallucinations. This type of bias is also not a feature of schizophrenia spectrum disorders. The group of patients with hallucinations demonstrated an impaired ability to attribute mental states to others (ToM), especially positive mental states. Correlation analysis and analyses of covariance demonstrated that the differences between the groups

could be attributed to the number of psychiatric hospitalizations and attention.

In attribution style, there was no evidence of a self-serving bias and a personalizing bias in the investigated sample. The self-reference bias was specific of patients with hallucinations, which could be attributed to the high rates of internality for negative events. The difference between the groups was not related to sociodemographic data, psychopathology, or neurocognition. The healthy control group showed an externalizing attribution style when compared to patients with hallucinations. That is, they attributed positive and negative events externally. The analyses suggest that these results could be attributed to the levels of depressive symptoms of the hallucinating group. The externalizing bias was neither related to sociodemographic data nor to neurocognition.

In the clinical groups, JTC and externalizing bias were related in the group of patients with no delusions and no hallucinations, and in the healthy group JTC bias, ToM, and attribution were correlated, suggesting these constructs should be intact to interact with each other.

In conclusion, the JTC bias is neither symptom-specific nor diagnosis-specific. ToM impairments were specific of patients with hallucinations. However attention and the number of psychiatric hospitalizations could have influenced these results. Attribution biases such as the self-serving bias, the personalizing bias, and the externalizing bias were neither symptom-specific nor diagnosis-specific. The self-reference bias was specific of patients with hallucinations.

Future research should investigate larger samples to confirm these results. Patients with hallucinations could benefit from theory of mind and meta-cognitive training, whereby patients are encouraged to gather social cues to avoid wrong inferences, and the disadvantages of attributing events internally are discussed.