

target mechanism through which individuals with schizophrenia show inaccurate IA.

**Methods:** Neural activation was measured using fMRI in 20 healthy controls and 20 individuals with schizophrenia as they completed IA and control versions of both a neurocognitive (i.e., Wisconsin Card Sorting Task) and a social cognitive task (i.e., emotion recognition). For each trial, participants made a required response to demonstrate their level of cognitive or social cognitive performance. A follow-up screen was then presented which differed in the two versions of the task. In the IA version, individuals rated their confidence in the correctness of the previous response on a scale from 1 to 5. In the control version, individuals selected a highlighted number on a scale from 1 to 5.

**Results:** Preliminary analyses revealed greater activation in rPFC, dACC, and insula during IA relative to control tasks. Inferior frontal gyrus, middle temporal gyrus, and cuneus also showed greater activation during IA. Of note, rPFC, dACC, insula, and IFG activations were evident only in healthy controls, whereas MTG and cuneus were present for both healthy controls and patients. Comparison of IA-related neural activity between groups revealed greater activation for controls relative to patients in rPFC, dACC, and insula during the neurocognitive task. Controls also showed greater activation in bilateral inferior frontal gyrus, inferior parietal cortex, and cuneus. During social cognitive IA, healthy controls showed increased activation in medial prefrontal cortex and insula relative to patients.

**Conclusion:** These results highlight a potential neural mechanism for impaired introspective accuracy in schizophrenia and suggest that domains of IA (e.g., social cognitive vs. neurocognitive) may be subserved by different networks.

## 62. NEW PERSPECTIVES ON SOCIAL COGNITIVE PROCESSES AND SOCIAL FUNCTIONING IN SCHIZOPHRENIA

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**Overall Abstract:** Social cognitive processes are crucial for individuals to effectively navigate the complex environment of social relationships. Although social cognitive impairment has been identified as a key determinant of poor community functioning in schizophrenia in the past decade, much less known about the underlying factors of social cognitive impairment and its exact pathway to social dysfunction. This session aims to address this critical knowledge gap.

Neeltje van Haren (University Medical Center Utrecht) will give a presentation titled “Visualizing Mental Representation of Emotional Faces in Schizophrenia.” Using psychophysical reverse correlation, her data show that internal representations of facial expression (i.e., trustworthy, untrustworthy) of patients are less expressive than those of controls, suggesting a potential mechanism of impaired social perception in schizophrenia. Laura Hieber (Vanderbilt University) will give a presentation titled “Consequences of Social Isolation and Loneliness on Social Perception.” Her findings show that social distress via loneliness is associated with false detection of biological motion in random noise in schizophrenia, suggesting that prolonged social isolation could have detrimental effects on social cognitive processes. Junghee Lee (University of California Los Angeles) will give a presentation titled “Neural correlates of Social Reward and Monetary Reward in Schizophrenia.” Using fMRI, her findings show that patients have blunted neural activation in the ventral striatum and ventromedial prefrontal cortex when processing social reward versus nonsocial reward, suggesting that neural circuits for reward processing of schizophrenia patients are not sensitive to social reward. Eric Granholm (University of California San Diego) will give a presentation titled “Asocial Beliefs Moderate Associations Between Impairments in Neurocognition and Social Cognition and Poor Social Competence in Schizophrenia.” His data show that asocial beliefs moderate the relationships between neurocognition and

social cognition and social competence in schizophrenia, suggesting that social cognitive impairments are less likely to impact social competence of patients with greater interest in socializing. Finally, Michael F. Green (University of California Los Angeles) will serve as a discussant to place the individual presentations in the context of the general issues of social cognitive processes and social functioning in schizophrenia.

### 62.1 VISUALIZING MENTAL REPRESENTATIONS OF EMOTIONAL FACES IN SCHIZOPHRENIA

Neeltje van Haren\*<sup>1</sup>, Loek Brinkman<sup>2</sup>, Jelmer Zondergeld<sup>1</sup>, Henk Aarts<sup>2</sup>, and Ron Dutch<sup>2</sup>

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**Background:** The ability to perceive, recognize and process own and others' emotions is crucial for efficient and effective social communication. Many different tasks have been used to investigate impairments herein in patients with schizophrenia. Evidence suggests that perception, discrimination and recognition of affective facial expressions are impaired in schizophrenia patients (Green, Horan & Lee, 2015; Chan et al 2010).

Importantly, not everyone may interpret the same facial expression similarly. People match their internal representation of specific facial expressions to perceived faces and variation in these internal representations may result in distortions of social reality. The impairments in face and/or emotion processing and the bias toward a more negative experience may be causally related to degradation of the internal representation itself or to disturbances in the higher order evaluation of visual input against functionally intact internal representations.

**Methods:** We use a data-driven technique of psychophysical reverse correlation, which makes it possible to visualize internal representations on computer screens.

Participants judge noisy images of faces that are created by superimposing random noise on a single constant base face. The random noise distorts the base face at the pixel level, generating facial variation across stimuli that is fully unconstrained and unaffected by researchers' a priori expectations. The participants' responses to a large number of faces are then used to model the facial information that was idiosyncratically diagnostic for the judgments. This analysis yields a classification image (CI) for each participant, which visualizes the facial characteristics that drive judgments of emotional expressions (i.e., their internal representation). Specifically, we used reverse correlation image classification (RCIC) to investigate and reconstruct the mental representation of trustworthiness as expressed on the face.

**Results:** Thus far, we have reliable data from 11 patients and 9 controls. While our results are preliminary, they show that patients are capable of performing the task adequately. Both a visual inspection of the group-level visualizations of the 3 constructs probed (i.e., untrustworthy, neutral, and trustworthy) as well as the computed correlations between these visualizations suggest that the internal representation of these constructs is less expressive in patients when compared to controls.

**Conclusion:** Being able to visualize mental representations of trustworthy and untrustworthy faces in patients with schizophrenia opens up the possibility of further use of RCIC tasks in the investigation of emotion-processing deficiencies in schizophrenia

### 62.2 CONSEQUENCES OF ISOLATION AND LONELINESS ON SOCIAL PERCEPTION

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**Background:** Schizophrenia is characterized by social withdrawal, along with hallucinations and delusions of typically social and emotional nature.