**Investigating Fractional State Occupancy of Brain States in Schizophrenia using Hidden Markov Modeling – Preregistration**

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Schizophrenia is a heterogenous disorder consisting of symptom ranging from cognitive to affective symptoms. Movie stimuli are promising paradigm to investigate individual differences in emotional processing. Recent studies have shown that symptom severity in schizophrenia is associated with decreased neural synchrony when viewing comedy movie clips.

We acquired

fMRI data of 80 participants (40 with transdiagnostic psychosis) who viewed video clips depicting scenes that may elicit different emotional reactions. We will fit a hidden Markov model (HMM) to the fMRI data in order to extract the brain states participants occupy during movie viewing and how much time they spend in these states (fractional occupancy (FO)). We will then decode hidden networks (HNs) based on the extracted states by associating them with 16 terms from the Neurosynth database. Specifically, anxiety, language negative, positive, outdoor, task switching, inhibition, conflict, feedback, somatosensory, sensorimotor, auditory, emotion, face perception. We will test two main hypotheses in this analysis: Firstly, we hypothesise that the FO will be significantly different between groups. Secondly, wFO states that are associated with clinicalvs. control participants

We will test the first hypothesis using Bayesian t-tests to compare the group difference for each state. For the second hypothesis we will group the HNs into ambiguous vs. non-ambiguous states and use an ANOVA to test the interaction of state type (ambiguous vs. non-ambigous) and group (patients vs. controls).