

## **Learning to sense God: How cognitive absorption and mental training shape religious experience**

### **ABSTRACT:**

#### **Background**

Spiritual practices often involve communicating with invisible beings such as gods or spirits. The neural correlates of these experiences remain largely unknown.

#### **Aims**

This project aimed to investigate the neurophenomenology of invisible presence in a sample of expert charismatic Christians (who pray to communicate with God) and tulpamancers (who create invisible companions called tulpas). We also aimed to examine the role of trait absorption in these experiences.

#### **Method**

We used fMRI to compare episodes of inner speech and motor action that felt self-generated to thoughts and actions that felt as though they were originating from an invisible other (God or a tulpa). We also reviewed the literature relating trait absorption and spiritual experiences and analyzed openscience datasets to examine potential correlations between absorption and the brain.

#### **Results**

All participants reported being able to interact with an invisible being (God or a tulpa) in the fMRI scanner. Reports of voluntary agency were reduced during experiences of invisible presence, and our preliminary fMRI results suggest that these experiences may be associated with altered activity of brain regions implicated in embodied self-awareness, the sense of agency, and self-other differentiation (to be confirmed in final analysis). Our literature review found that trait absorption is correlated with a variety of spiritual experiences. Our analysis of open-science fMRI datasets, however, did not find any reliable association between trait absorption and the brain.

#### **Conclusions**

Experiences of invisible presence can be captured in the fMRI scanner and may be associated with modulation of brain circuitry involved in the experience of agency.

#### **Keywords**

Charismatic prayer, Tulpamancy, Altered agency, Invisible presence, Neuroimaging

### **Published Work:**

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