

Background

- **Perceptual reality monitoring** is the ability to distinguish between sensory (e.g., viewing an image) versus sensory-independent perception (e.g., imagination, hallucinations).
- Healthy individuals and certain patient groups (e.g., schizophrenia) may experience **impaired reality monitoring** [1].
- The underlying neural and behavioral correlates of perceptual reality monitoring remain **unknown**.
- **Afterimages** are illusory, visual perceptions that often occur following adaptation to a stimuli and may be correlated with mechanisms of sensory-independent perception [2].

Can we use afterimages to induce perceptual reality monitoring errors in healthy individuals?

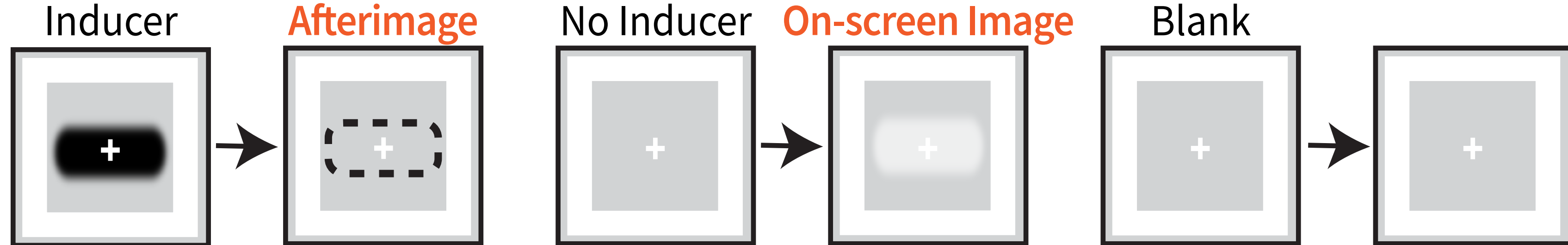
Methods

Participants: N = 15 (10 female, mean age = 24.33 years)

Surveys: Cardiff Anomalous Perceptions Scale (CAPS), Launay-Slade Hallucination Scale (LSHS), Vividness of Visual Imagery Questionnaire (VVIQ) [3, 4, 5].

Paradigm:

Trial Types:



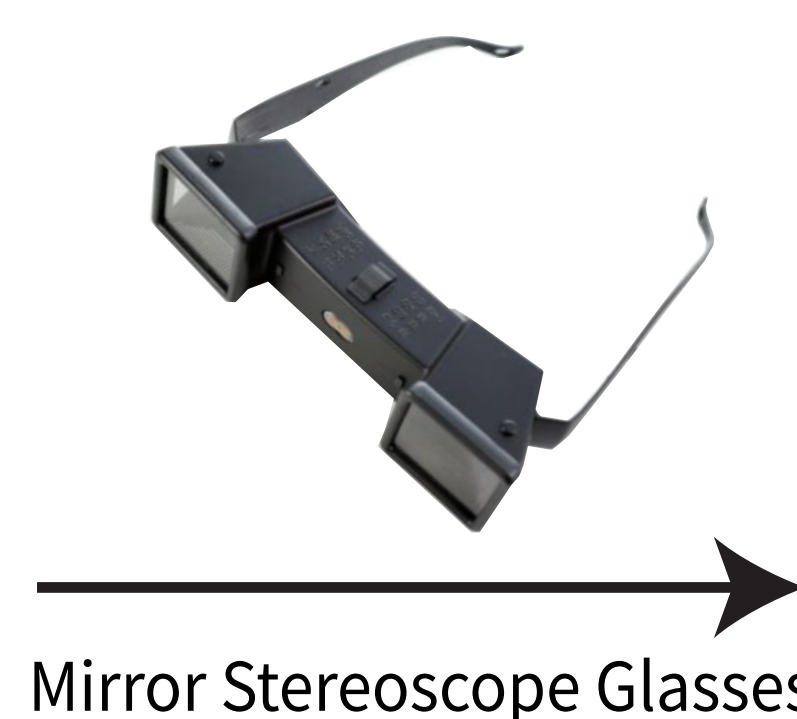
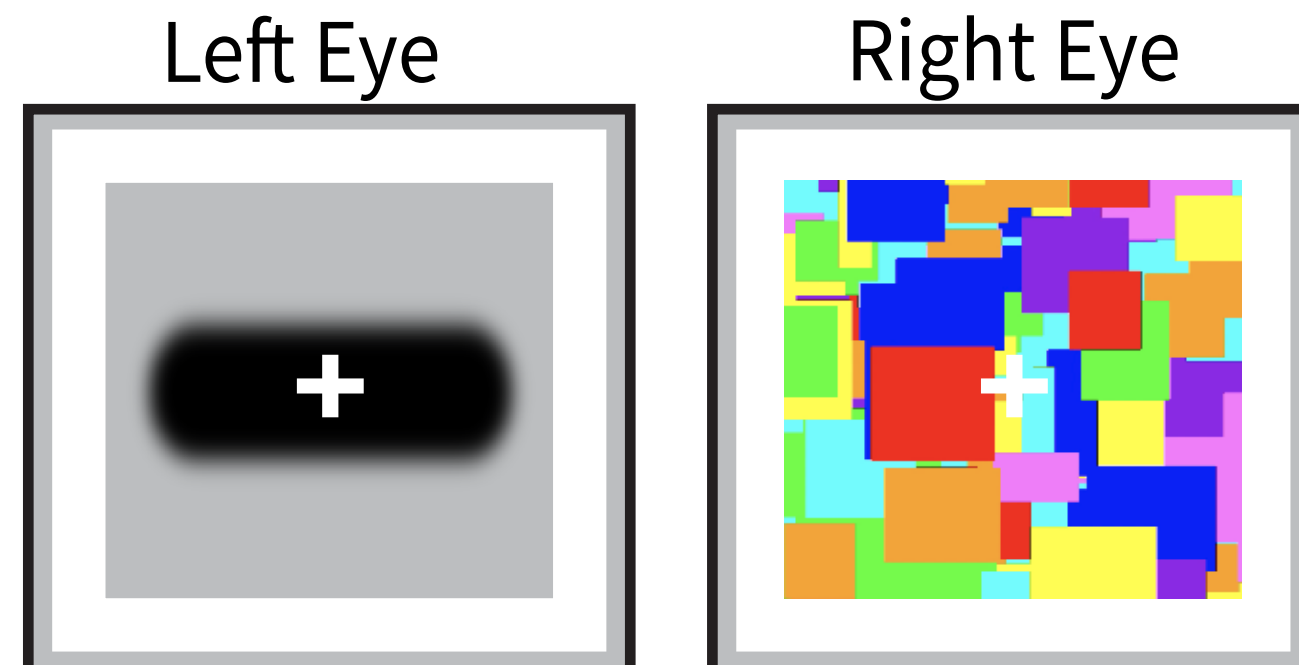
Questions:

Did you see an image?
1: Afterimage
2: On-screen Image
3: Nothing

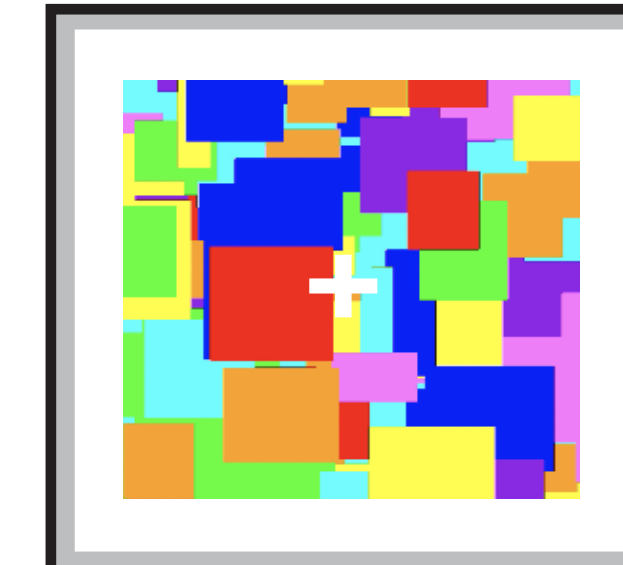
How confident are you about your answer?
1: Not confident
2: Slightly confident
3: Fairly confident
4: Completely confident

What position was the image in?
1: Top Left
2: Top Right
3: Bottom Left
4: Bottom Right

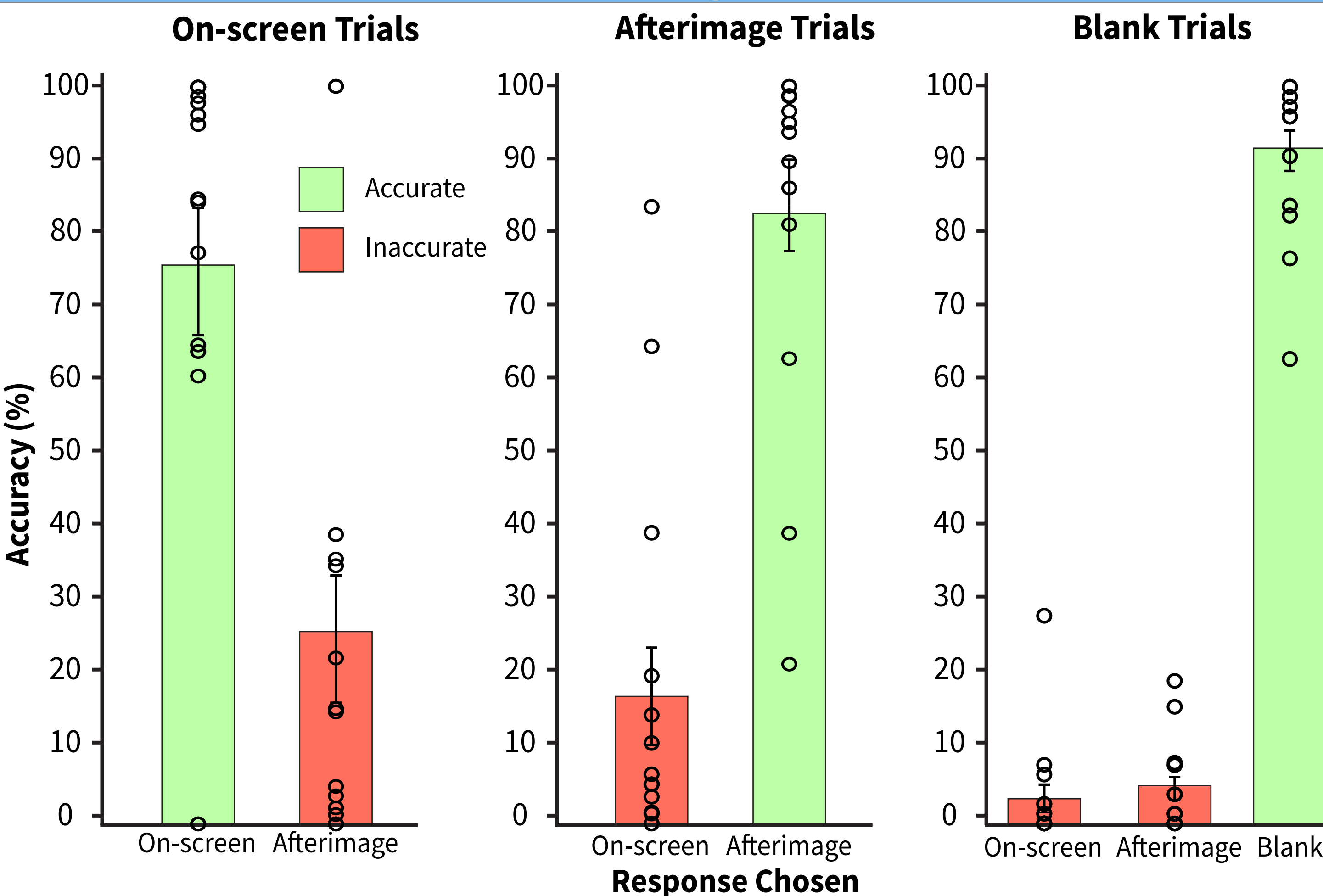
Continuous Flash Suppression (CFS):



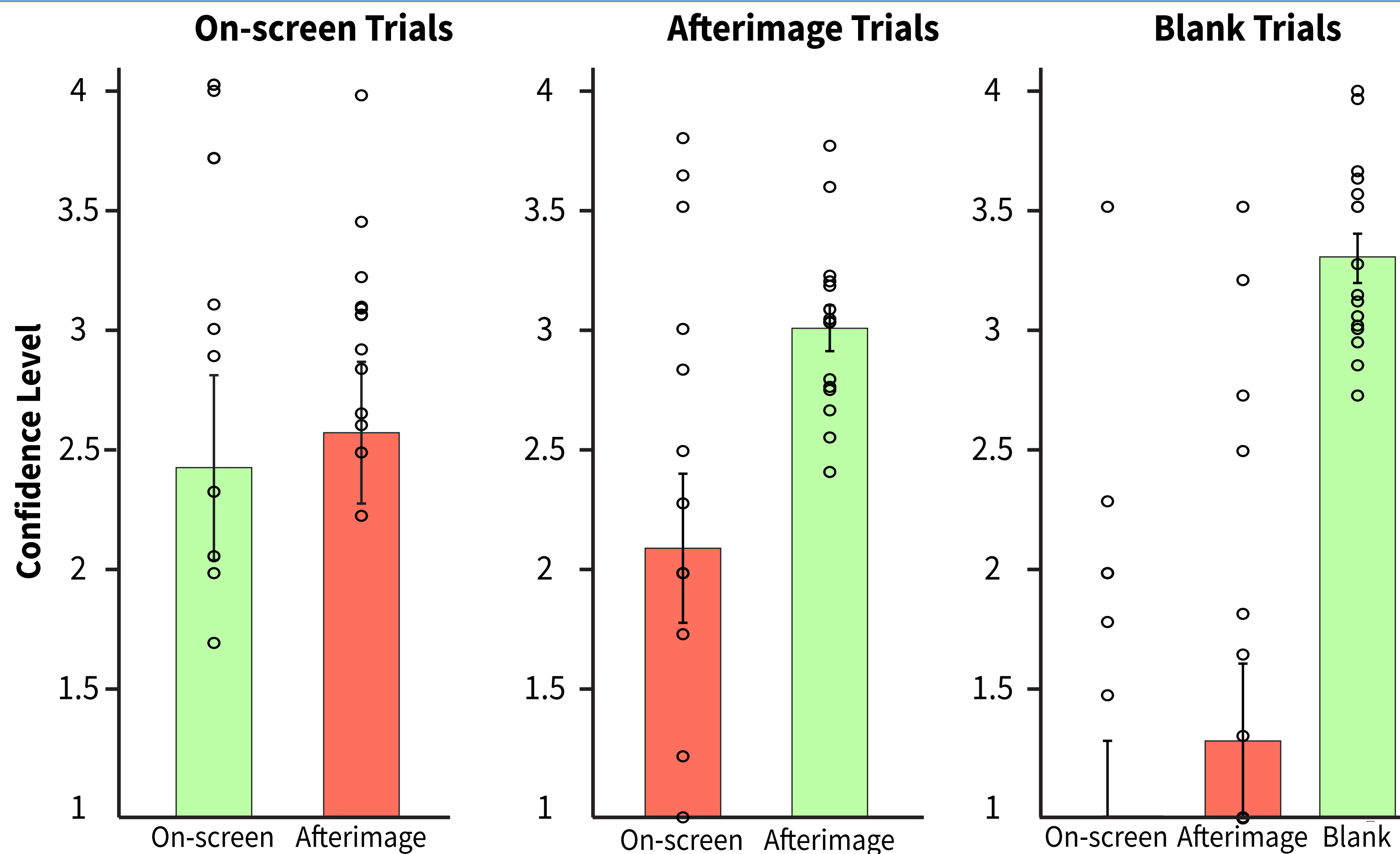
Complete Suppression of Inducer



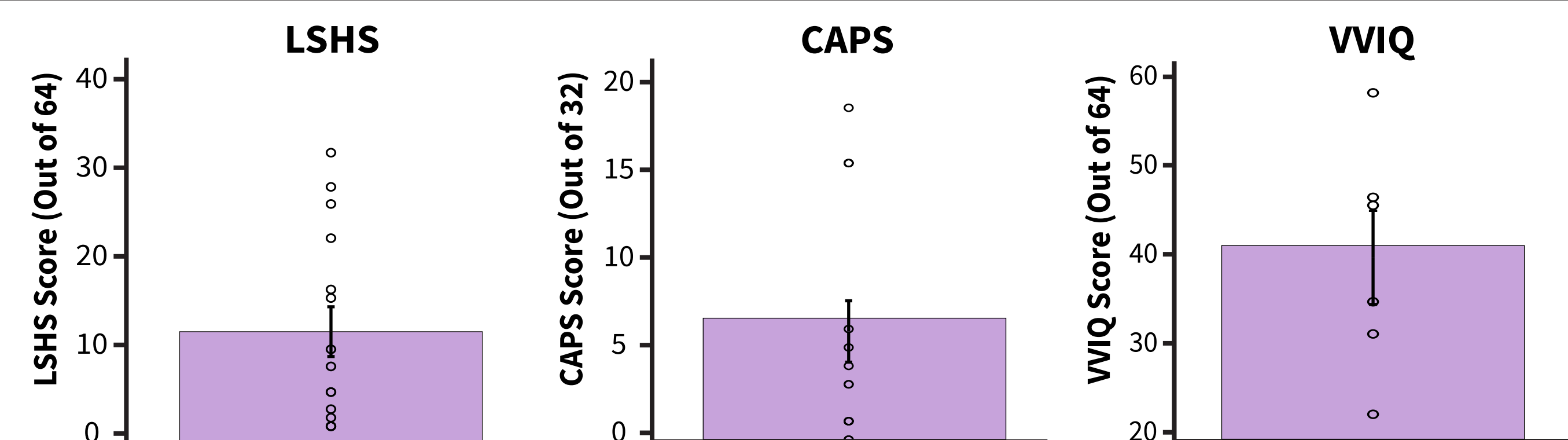
Paradigm successfully induces reality monitoring errors in healthy individuals



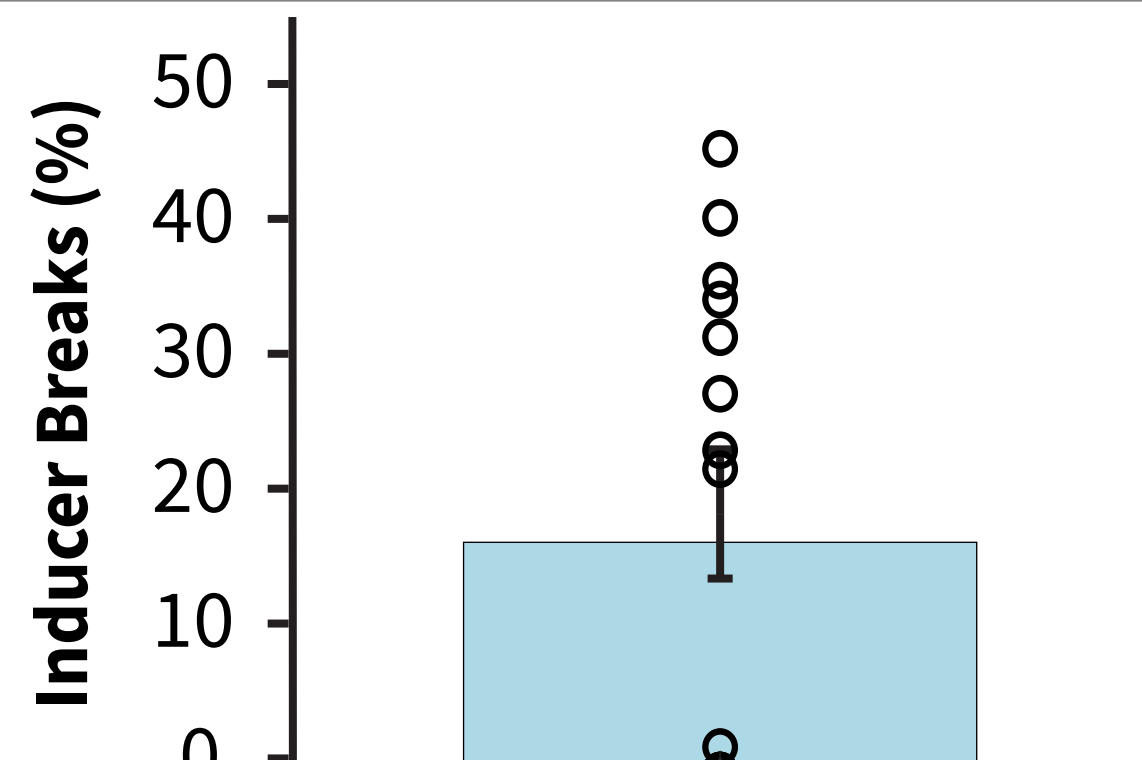
Level of confidence may depend on trial type



Variability in survey scores may correlate with reality monitoring ability



CFS successfully suppresses inducer

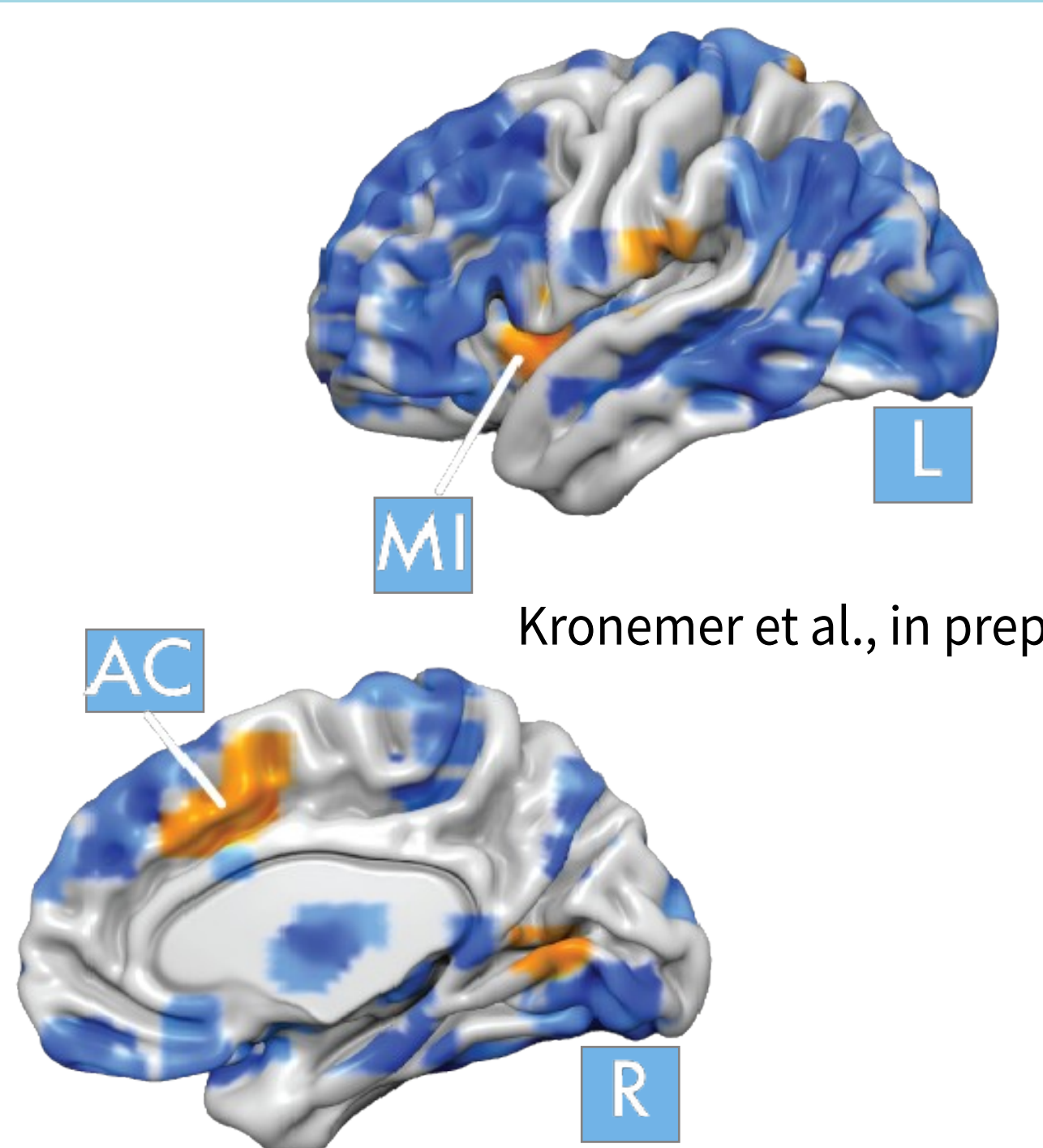


Conclusions

- Developed a novel reality monitoring paradigm that successfully induces reality monitoring errors in healthy individuals.
- Replicated previous findings using CFS to suppress inducer perception without inhibiting afterimage perception [6].

Future Directions

- Collect extensive behavioral data to further investigate the correlation between trait variability and perceptual reality monitoring ability (e.g., hallucinations and mental imagery strength).
- Test our reality monitoring paradigm in patient groups with impaired reality monitoring (e.g., schizophrenia).
- Combine our reality monitoring paradigm with neuroimaging (e.g., fMRI, EEG, and MEG) to study which brain regions/neural activity are involved in successful/erroneous reality monitoring.



References

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