

How Do We Catch a Blank Mind?

Comparing Self-caught and Probe-caught Mind Blanking

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Introduction



Mind-blanking (MB) is a unique mental state where the mind feels empty or with no reportable content^[1]. It is typically studied using probed-caught methodologies, where participants report their mental state when randomly probed; but it remains unknown if individuals could also self-catch these MB moments. This study compares self-caught and probe-caught MB, to test whether they reflect the same phenomenon.

Methods

Within-subject design (3T fMRI)

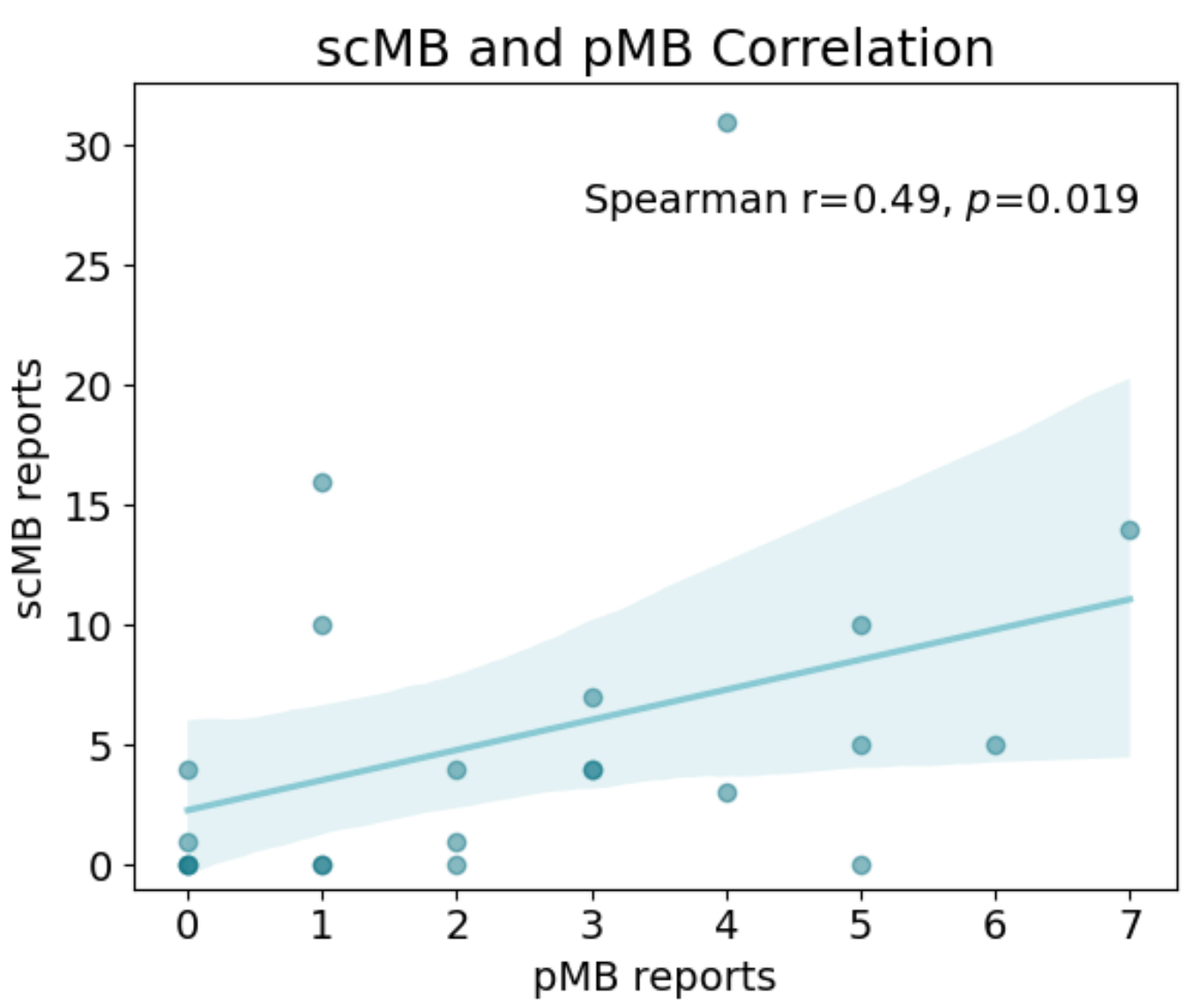
N = 22
Healthy participants
age: 28 ± 4; 45% female

Analysis

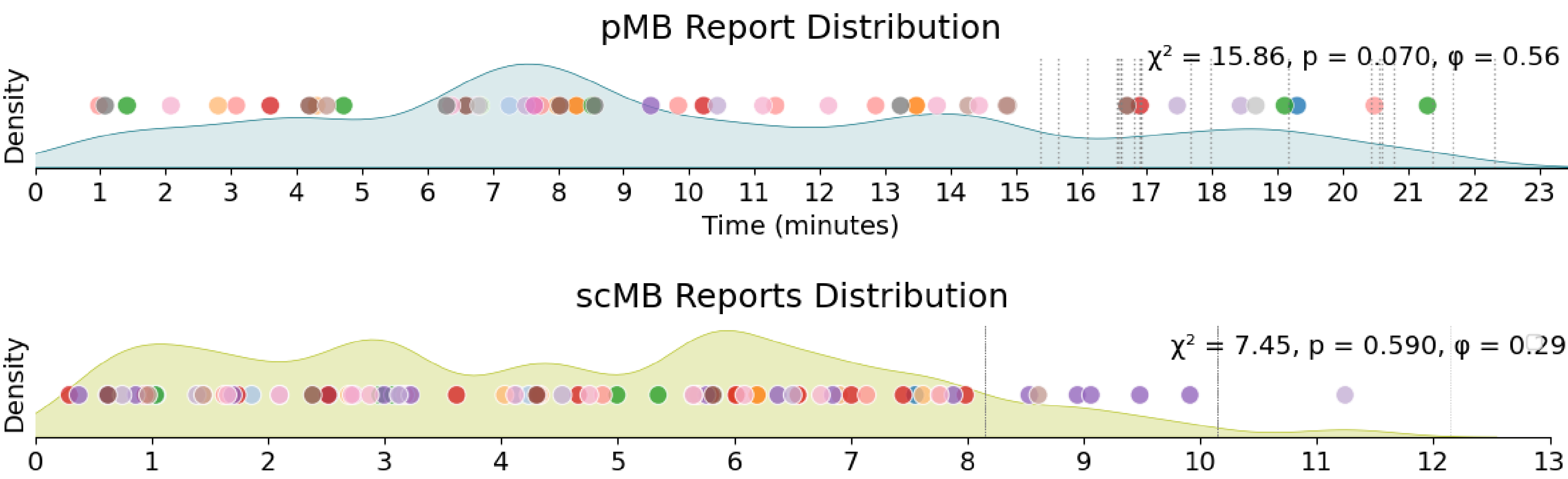
- 1. Behavioral Consistency**
 - Method:** Spearman correlation of MB frequency between tasks.
 - Goal:** Test consistency of MB across tasks.
- 2. Temporal Distribution**
 - Method:** χ^2 test comparing report distribution against uniform.
 - Goal:** Determine if scMB also shows uniform distribution as pMB^[3].
- 3. Neural Correlates**
 - Method:** Two-level GLM Analysis (1st: subject map + 2nd: group t-test, FDR $p < .01$).
 - Goal:** Identify brain areas activated in scMB > pMB.

Results

Behavior

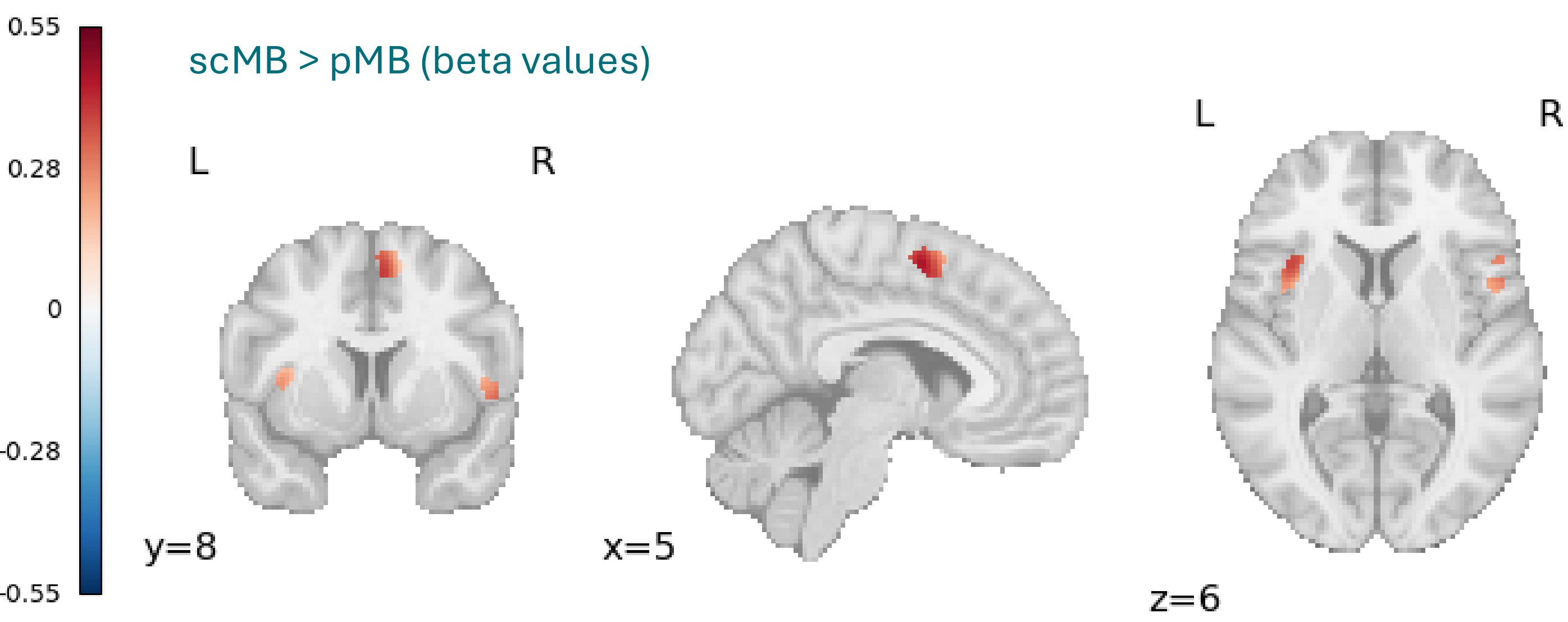


Positive correlation between number of MB reports in each task



Both pMB and scMB reports are distributed uniformly across time.

Brain



Higher activation in sensorimotor network (supplementary motor areas and insula) → interoceptive awareness, motor control

Highlight

While self-caught MB shares behavioral similarities with probe-caught MB, self-caught MB is distinguished by activation in brain regions related to motor preparation and bodily awareness, likely reflecting the act of monitoring their internal state to report MB.

References

[1] Boulakis & Demertzi, 2025. *Current Opinion in Behavioral Sciences*. Vol 61, 101481
[2] Andriillon et al., 2021, *Nature Communications*, Vol. 12, 3657
[3] Mortaheb et al., 2022. *Proceedings of the National Academy of Sciences*, Vol. 119, e2200511119