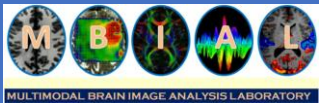


Neurocognitive impairment in chronic versus recent-onset schizophrenia and its gray matter correlate

Vineeth Mohan^{1,4}, Pravesh Parekh^{2,4,5}, Sydney Moirangthem², Jitender Saini³, John P John^{2,4,5,6}

¹Department of Clinical Neurosciences, ²Department of Psychiatry, ³Department of Neuroimaging and Interventional Radiology, ⁴Multimodal Brain Image Analysis Laboratory, ⁵ADBS Neuroimaging Centre, ⁶Centre for Brain Mapping, National Institute of Mental Health and Neurosciences, Bangalore



INTRODUCTION

- Recent longitudinal studies and meta-analyses have concluded that cognitive impairment in schizophrenia is generalized and remains relatively stable up to a duration of 15-20 years of follow-up^{1,2}.
- We studied the differential pattern of neurocognitive impairment and its neuroanatomical correlates in recent-onset (RO_{SZ}) and chronic schizophrenia (CH_{SZ}), compared to healthy subjects (HS).

METHODS

	RO _{SZ} (n = 17)	CH _{SZ} (n = 14)	HS (n = 16)
Age (years)	18 – 29	30 – 50	19 – 42
Illness Duration	≤ 2 years	≥ 15 years	–

Global Neuropsychological Assessment (GNA)³

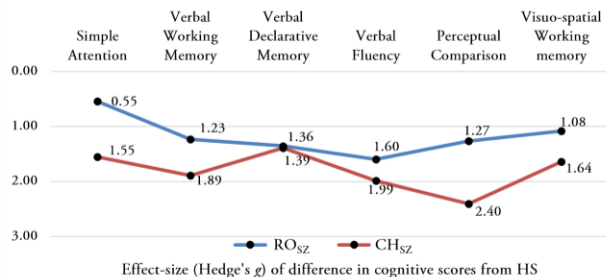
- Verbal declarative memory
- Perceptual comparison speed
- Simple attention
- Verbal working memory
- Verbal fluency
- Visuo-spatial working memory

Magnetic Resonance Imaging (MRI)

- 3T Philips Ingenia CX
- 32-channel head coil
- T1-weighted images
- 1mm isotropic voxel
- 192 sagittal slices, TR 6.5 ms, TE 2.9 ms, flip angle 9°

RESULTS

- For each cognitive domain, the Z-score differences from HS were greater in CH_{SZ} than RO_{SZ}, with the largest effect size in perceptual comparison speed (for CH_{SZ}, $g = -2.4$) and verbal fluency (for RO_{SZ}, $g = -1.6$).



- After adjusting for age, education, and group × age interaction, MANCOVA showed a significant group effect (Pillai trace = 0.69, $p = 0.001$); perceptual comparison speed showed the largest effect size ($p < 0.001$, $\eta^2_{\text{partial}} = 0.41$) in *post-hoc* ANCOVA.
- Perceptual comparison speed was the only domain that differed significantly between RO_{SZ} and CH_{SZ} groups after adjusting for education, SANS, and SAPS ($p = 0.009$, $\eta^2_{\text{partial}} = 0.23$).

RESULTS (CONTD.)

Correlation with MRI⁴

Perceptual comparison speed showed a positive correlation with the left anterior temporal lobe gray matter (MNI: -38, 6, -33, 46 voxels, $p < 0.05$ FWE), after adjusting for TIV and age in the overall sample.



CONCLUSIONS

- Cognitive impairment is seen in both RO_{SZ} and CH_{SZ} in multiple domains.
- Perceptual comparison speed which was correlated with left anterior temporal lobe was found to be differentially affected with chronicity.

REFERENCES

- M. Albus et al., Eur. Arch. Psychiatry Clin. Neurosci. 270, 689–698 (2020).
 - M. Fioravanti, V. Bianchi, M. E. Cinti, BMC Psychiatry. 12, 64 (2012).
 - L. T. Olson et al., Assessment (2021), doi:10.1177/10731911211991221.
 - CAT 12.7, <http://www.neuro.uni-jena.de/cat/>
- Funding:** DST/JJP/1009 to JJP, ICMR TSS fellowship