

ORBITOFRONTAL SULCAL PATTERNS IN CATATONIA



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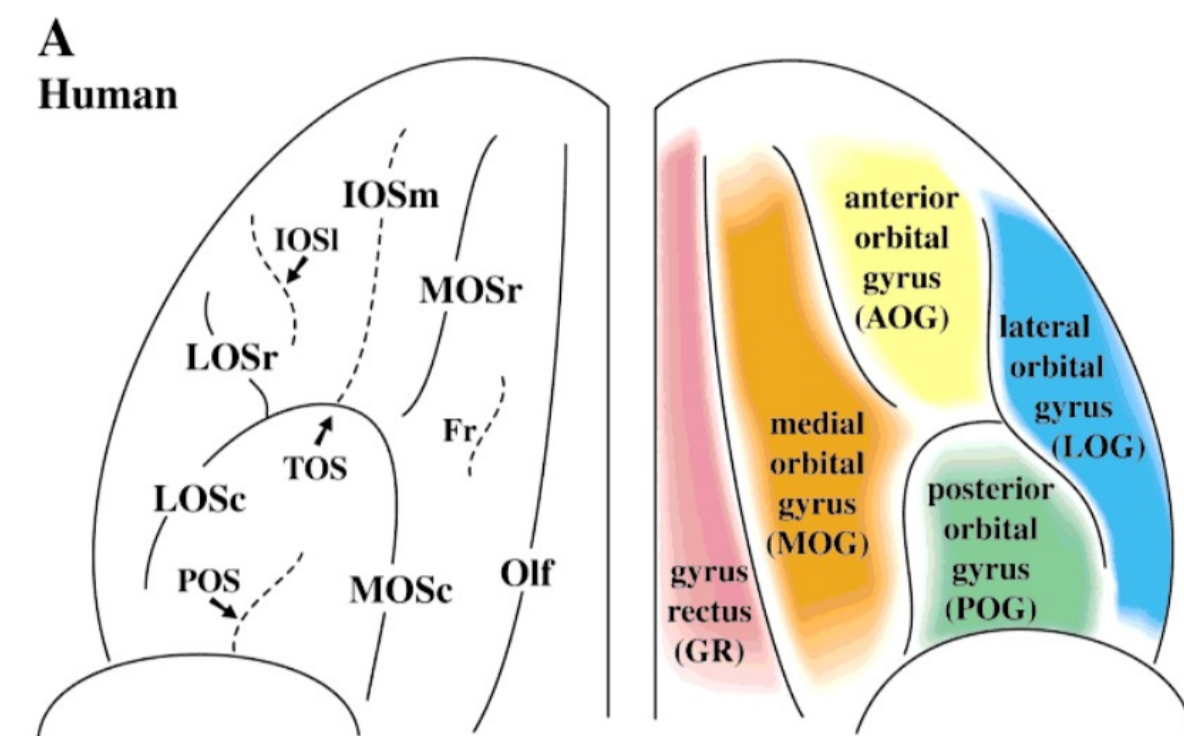
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1) INTRODUCTION

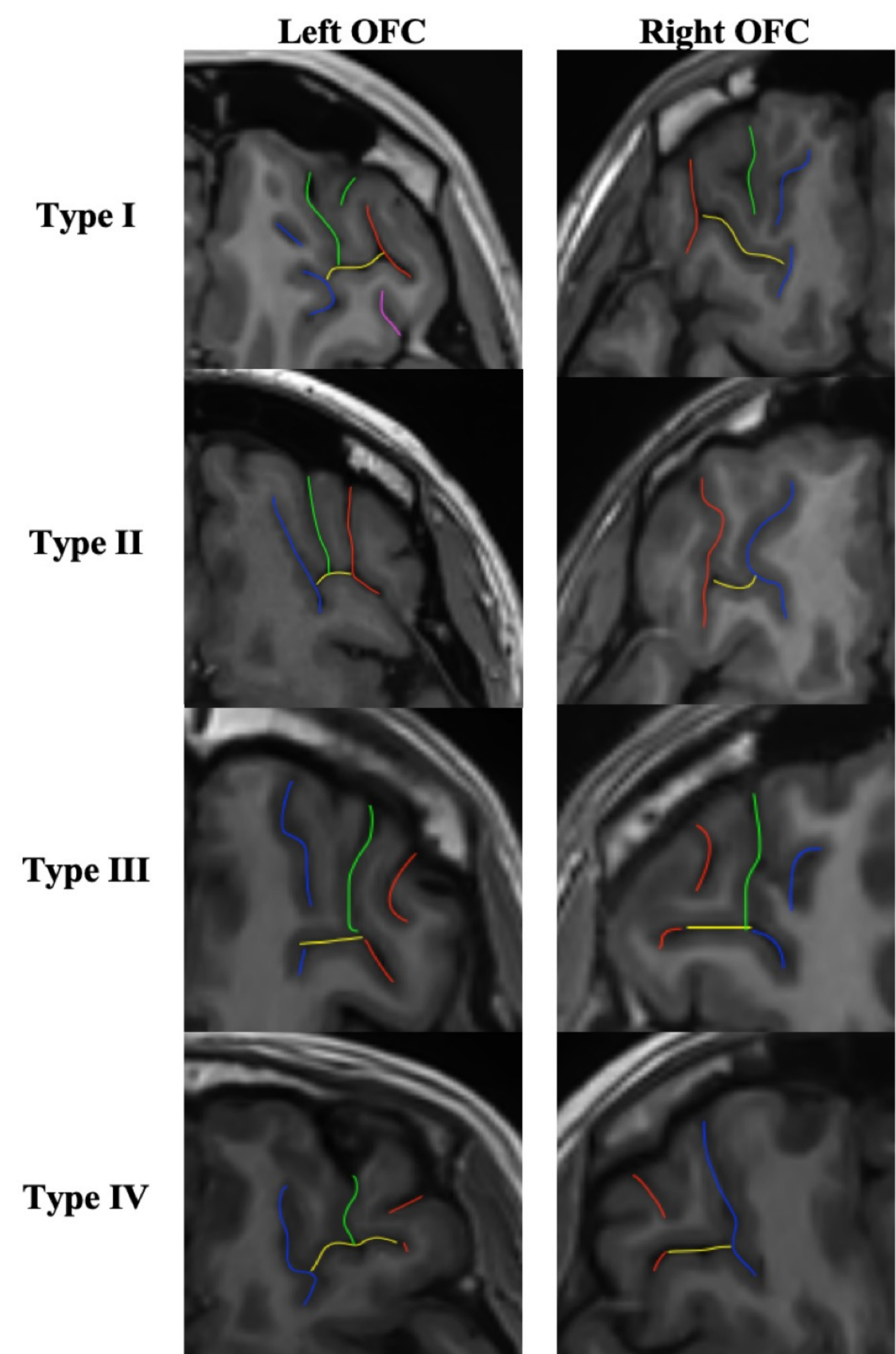
- Catatonia is a psychomotor syndrome frequently observed in disorders with **neurodevelopmental** impairments.
- The **orbitofrontal cortex** (OFC) has been repeatedly associated with catatonia.

- OFC has an important inter-individual morphological variability, with three distinct H-shaped sulcal patterns: type I, II, III, based on the **continuity of the medial and lateral orbital sulci**.
- Types **II and III** have been identified as **neurodevelopmental risk factors for schizophrenia**.



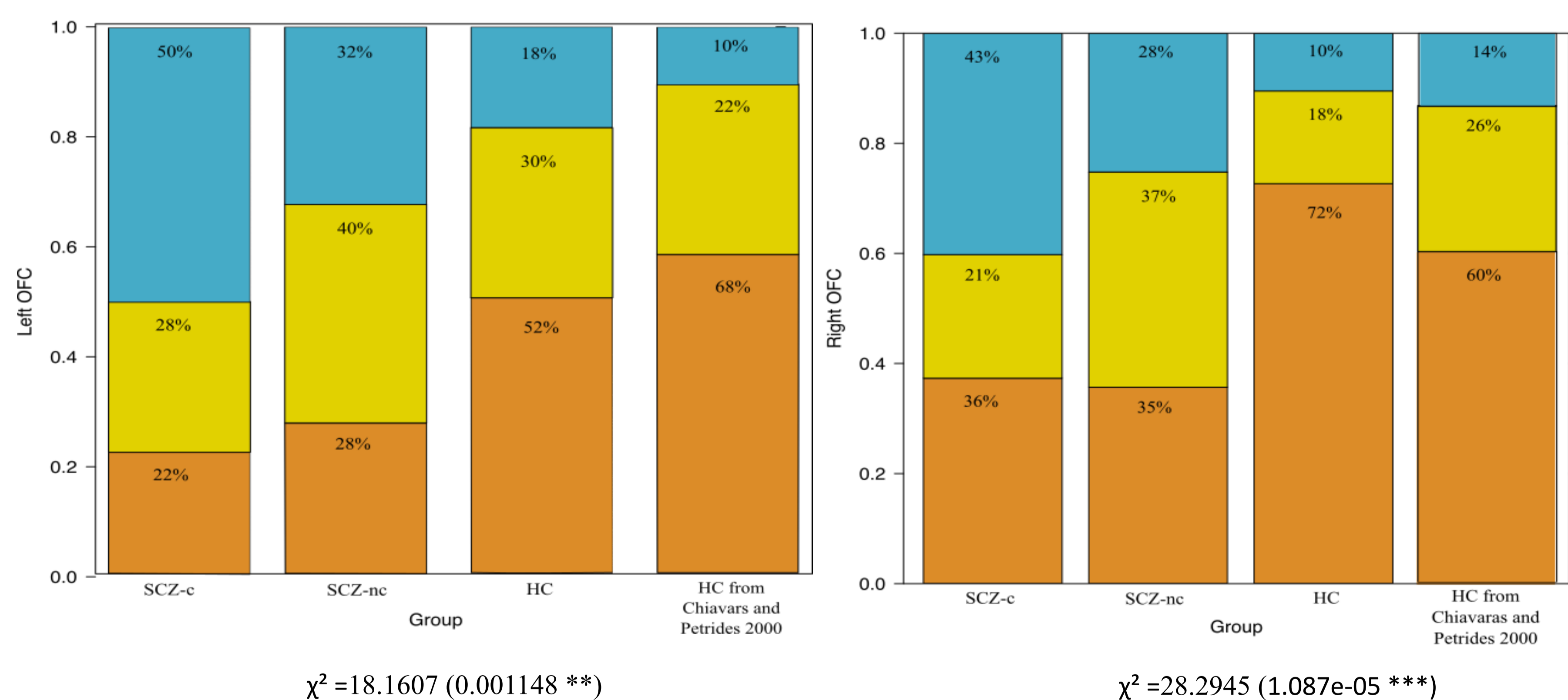
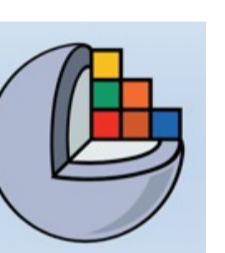
2) METHODS

| | SCZ-c (N=58) | SCZ-nc (N=65) | HC (N=82) | SCZ-c vs SCZ-nc (p value)* |
|--|--------------------------|---------------------------|---------------------------|----------------------------------|
| Men:Women | 40:18 | 44:21 | 39:43 | 1 |
| Sex ratio (Men / Women) | 2.2 | 2.1 | 0.91 | 1 |
| Age, m ± sd years | 36 ± 17 | 37 ± 13 | 29 ± 8 | 0.4 |
| Schizophrenia, N (%) | 48 (83) | 53 (82) | - | 1 |
| Schizoaffective disorder, N (%) | 10 (17) | 12 (18) | - | 1 |
| Age at onset, m ± sd years | 25.1 ± 9.8 | 28.3 ± 10.3 | - | .07 |
| Average length of hospitalization, m ± sd days | 76.3 ± 61 | 54.2 ± 51.2 | - | .02 |
| ECT, N (%) | 30 (52) | 6 (9) | - | <.0001 |
| ECT, m ± sd session numbers | 12.5 ± 7.4 | 13 ± 7.7 | - | 0.99 |
| Assessment of DSM-5 criteria for catatonia | 58 (100) | 65 (100) | - | - |
| BFCRS evaluation, N (%) | 27 (47) | - | - | - |
| BFCRS score, m ± sd days | 17 ± 7 | - | - | - |
| 1,5T GE / 3T GE / 3T CANON, N (%) | 50 (86) / 8 (14) / 0 (0) | 54 (83) / 11 (17) / 0 (0) | 0 (0) / 20 (24) / 62 (76) | 0.96 |



3) RESULTS

Manual classification with 2 raters using 3D slicer



$\chi^2 = 18.1607 (0.001148 **)$

$\chi^2 = 28.2945 (1.087e-05 ***)$

| | | OFC | SSD-c (N=58) | Main effect of Type (p value) | Inter group comparison t.ratio (p value) | | |
|--|-----------|-----|-----------------|-------------------------------------|---|----------|-----------|
| | | | | | I vs II | I vs III | II vs III |
| | | | | | BFCRS score, m ± sd | Left OFC | I |
| | | II | 13.4 ± 6.9 | | | | |
| | | III | 23 ± 7.6 | | | | |
| | Right OFC | I | 16.1 ± 6.6 | 0.25 | | | |
| | | II | 21.7 ± 7.4 | | | | |
| | | III | 20.1 ± 7.6 | | | | |
| | | II | 17.7 ± 7 | | | | |
| | | III | 18.3 ± 7.7 | | | | |

4) DISCUSSION

Catatonia patients have **less type I** and **more type III** than healthy subjects and more type III than schizophrenia patients without catatonia.

- First study to provide evidence of **abnormal OFC sulcal patterns in schizophrenia patients with catatonia**, with more **type III** than in healthy subjects and in schizophrenia patients without catatonia, supporting a **neurodevelopmental component** of catatonia, at least in schizophrenia patients.
- Catatonia neurodevelopmental component** is increasingly recognized and needs to be further investigate notably in non-psychosis catatonia patients.
- Such investigations aim to enhance **patient characterization** and **delve deeper into the underlying pathophysiological mechanisms** of catatonia.

5) REFERENCES

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