



Anatomical lesions associated with communication-related quality of life following surgical removal of primary left-hemisphere tumours

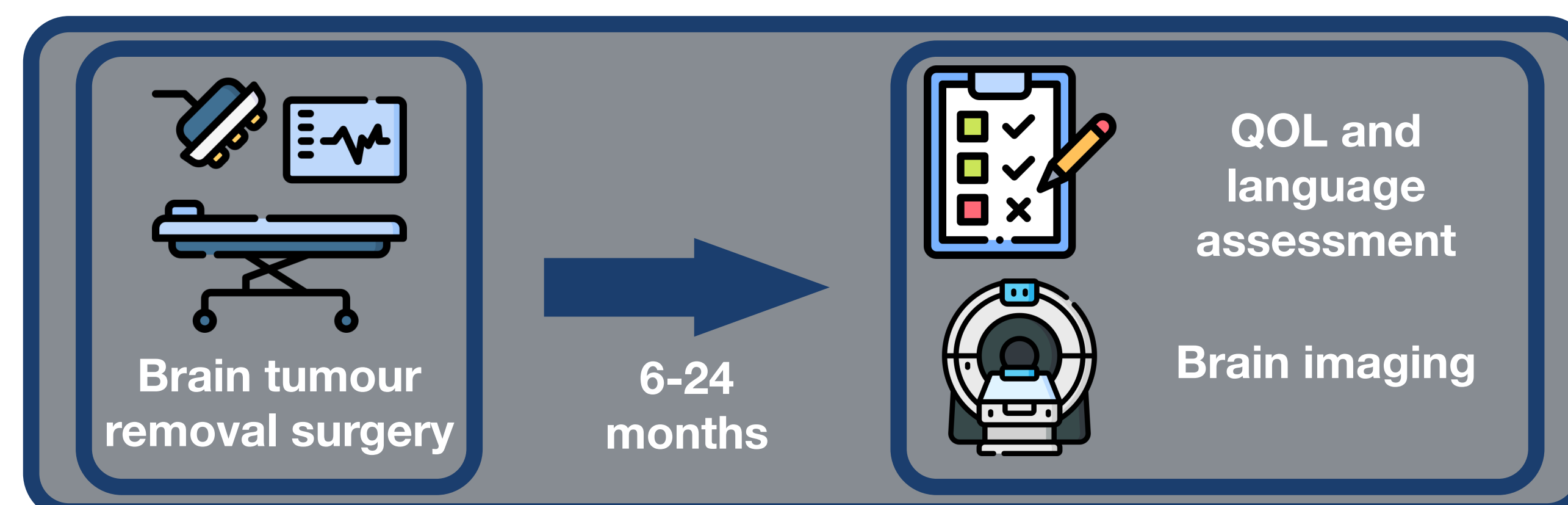
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Background

- Long-term quality of life (QOL) is an important consideration in the planning of treatment for individuals undergoing brain tumour surgery
 - Left-hemisphere tumours increase risk of aphasia, but frequently-used assessments of QOL in brain tumour settings do not examine impact of aphasia on QOL
- AIM:** Examine relationships between comprehensive measures of QOL and location of lesions in patients 6-24 months post brain tumour surgery

Methods: Procedure



Methods Cont'd

Participants

- N = 37 (17 female) with left hemisphere tumours
- Mean age (years): 47 ± 13
- Majority (68%) had aphasia

Sites

- Princess Alexandra Hospital
- Royal Brisbane and Women's Hospital
- Royal Melbourne Hospital

Data Processing: Lesion Maps

- 3 lesion maps** traced per participant using T1-weighted and FLAIR images
 - Primary **Resection**
 - Resection+** residual brain damage (from surgery, residual tumour, tumour reoccurrence, oedema)
 - Residual** brain damage alone

Data Processing: QOL

- Principal-component analysis** of 10 QOL measures from the CAT-Disability Questionnaire, Fact-Br and DASS-21 revealed two components:
 - Communication-related QOL**
 - Mood-related QOL**

Methods: Statistical Analysis

- Voxel-wise lesion symptom mapping** assessing relationships between QOL components and lesion maps
- General linear models assessing relationships between QOL components and **tract- and voxel-wise disconnection severities**

Discussion

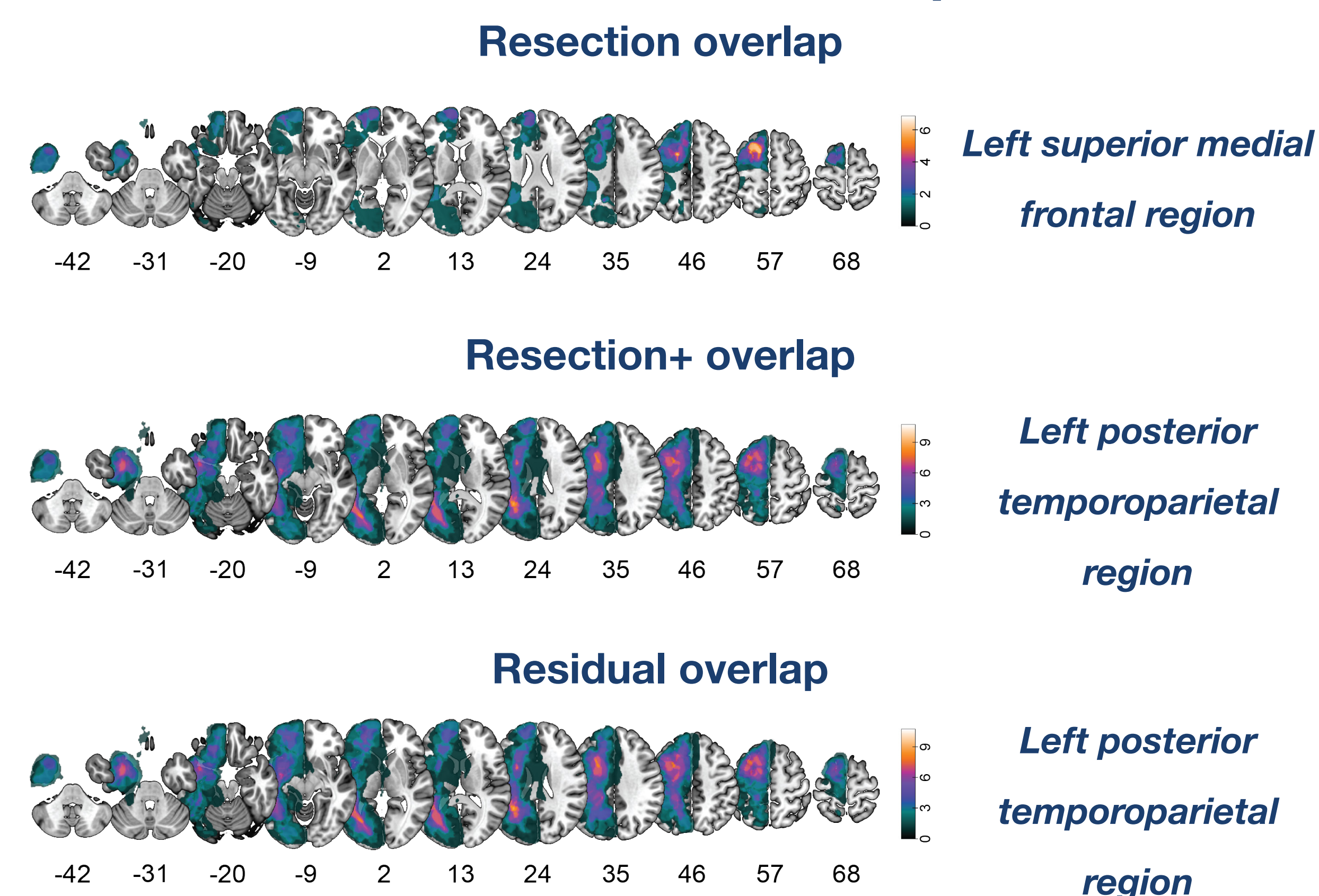
- Despite evidence of chronic aphasia, self-rated QOL was largely within normal limits; may suggest minimal impact of impairment on QOL or limited insight into communicative ability due to parietal damage
- Results highlight role of residual brain damage and associated white matter disconnection in communication-related QOL

Acknowledgements

This study was supported by the National Health and Medical Research Council [APP1079157] and Cancer Council Queensland [APP1060699]. G.A.R. was supported by a NHMRC Boosting Dementia Research Leadership Fellowship (APP1135769). Icon images are reproduced with permission from Flaticon.com.

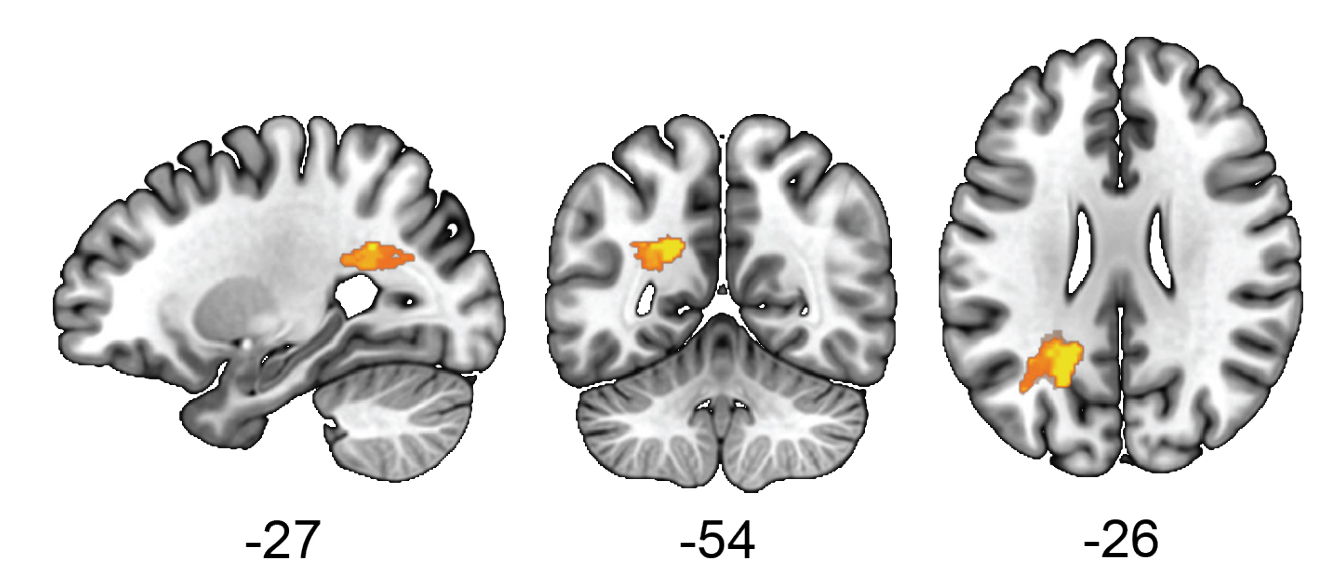
Results

1. Where did the lesions overlap in the brain?



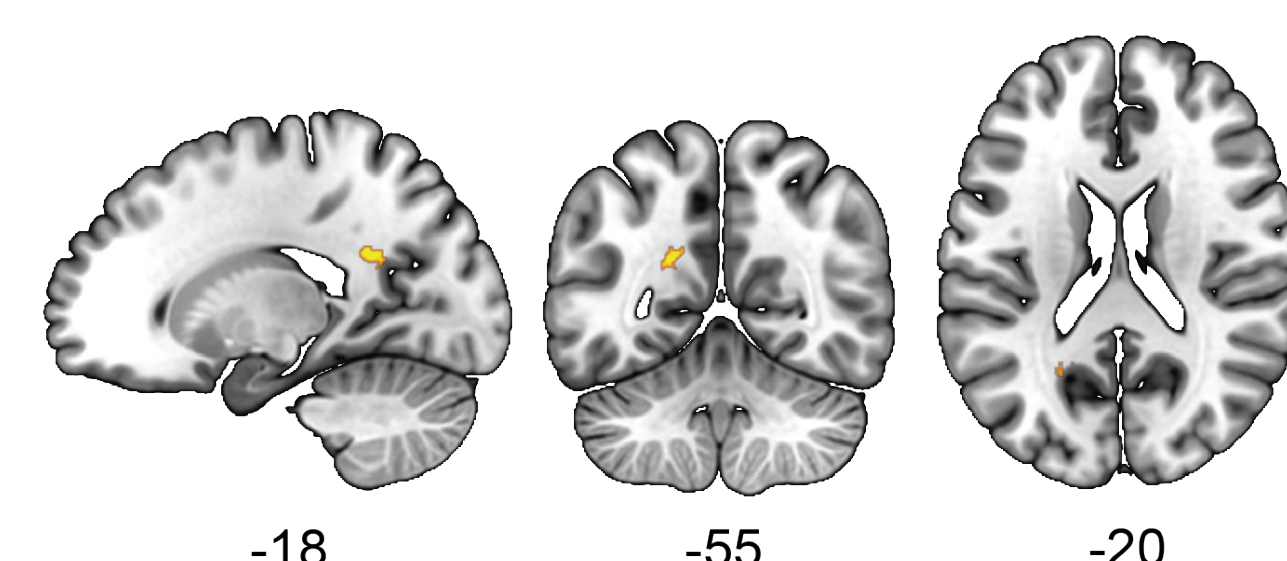
2. Does communication-related or mood-related QOL predict lesion location in the brain?

Resection+ ~ communication-related QOL



- Communication-related QOL** was significantly associated with **Resection+** and **Residual lesion maps** in the **left medial inferior parietal lobe**

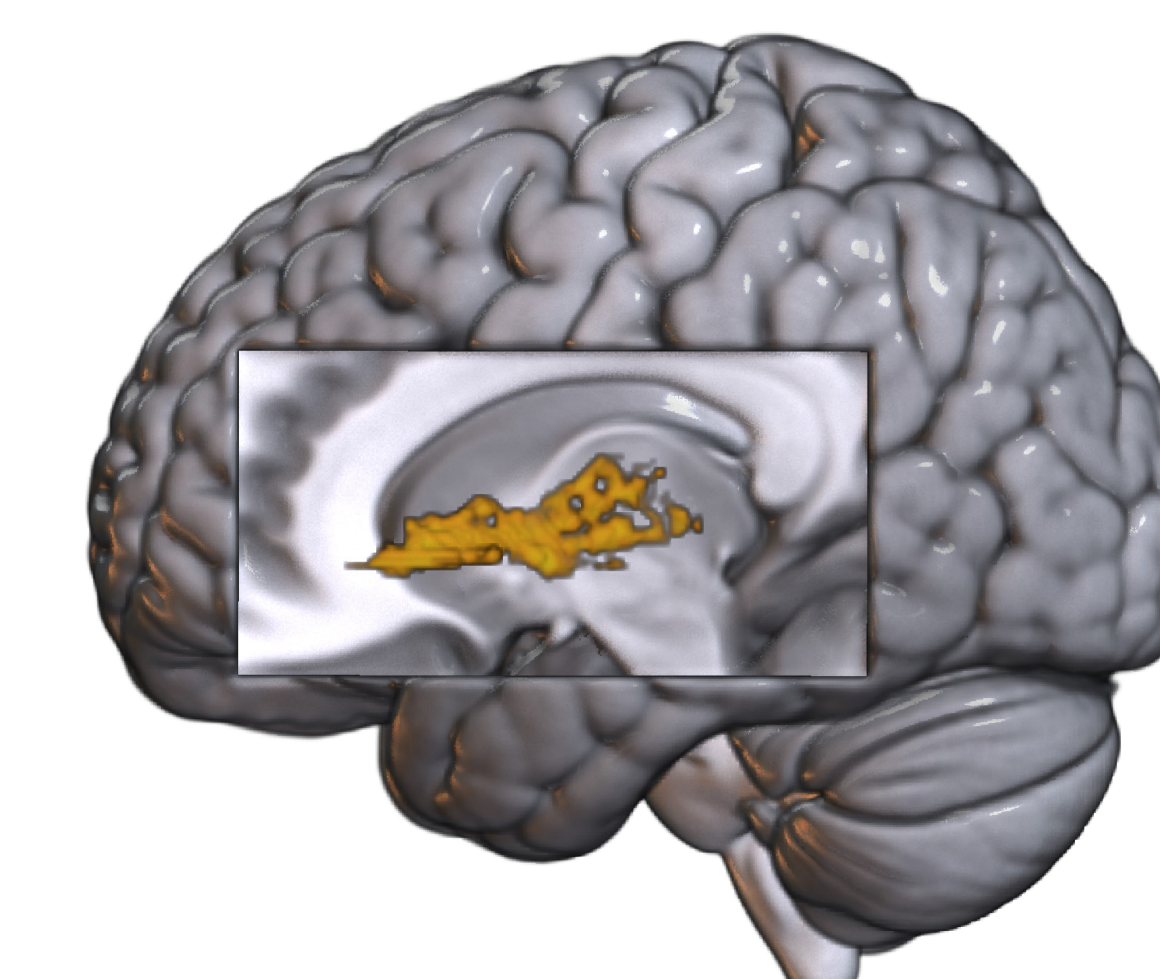
Residual ~ communication-related QOL



- No significant findings for mood-related QOL
- No significant findings for primary Resection lesions

3. Does communication-related or mood-related QOL predict white matter tract disconnection severities?

Residual voxel-wise disconnection severities ~ communication-related QOL



- Better communication-related QOL** was significantly related to **more severe disconnection of thalamostriatal tracts** for the Residual lesions
- No significant findings for tract-wise analyses, mood-related QOL, or Resection/Resection+ lesions

Findings highlight the role of residual brain damage and associated white matter disconnection in communication-related QOL following treatment