

## Perceptual and semantic deficits in face recognition in semantic dementia patients

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### State of the art:

Semantic dementia (SD) patients show face identification difficulties associated with right anterior temporal lobe (ATL) atrophy. However, it remains unclear whether they also have perceptual deficits in face recognition.

### Methodology:

We selected 60 SD patients (Mean age 73.38±7.23, 30 females) (41 with semantic variant primary progressive aphasia (svPPA) and predominant left ATL atrophy and 19 with semantic behavioral variant frontotemporal dementia (sbvFTD) and predominant right ATL atrophy) and 41 cognitively healthy controls (HC) from UCSF Memory and Aging Center who underwent a face perception test (Benton facial recognition test; BFRT), identity-specific person knowledge tests (UCSF Famous faces battery – Recognition, Semantic associations – pictures subtests) and magnetic resonance imaging. Voxel-based morphometry was performed using CAT12.

### Results:

Compared to HC, both svPPA and sbvFTD patients showed preserved performance on the BFRT. In patients, performance on the BFRT correlated with both disease severity (CDR FTLD sum of boxes) and gray matter volume in the right posterior superior temporal sulcus. However, svPPA and sbvFTD patients were impaired on all person knowledge tests, with sbvFTD patients performing significantly lower on the famous faces' recognition task in comparison to svPPA patients. These two tasks correlated with gray matter volume in the right ATL.

### Conclusion:

Our results suggest that early in the disease, with the atrophy restricted to the right anterior temporal regions, SD patients do not present with perceptual deficits. However, more severe SD cases with atrophy in right posterior temporal regions might show lower performance on face perception tests.

## Conflicts of interest

none