

Brain region implicated in emotional disturbance in dementia patients

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A study by researchers at Neuroscience Research Australia (NeuRA) is the first to demonstrate that patients with frontotemporal dementia (FTD) lose the emotional content/colour of their memories. These findings explain why FTD patients may not vividly remember an emotionally charged event like a wedding or funeral.

The research team discovered that a region of the brain, called the orbitofrontal cortex, plays a key role in linking emotion and memories.

"This step forward in the mapping of the brain will improve how we diagnose different types of dementia," says the study's lead author, Associate Professor Olivier Piguet.

The fact that we vividly remember events infused with emotion - like birthday parties - is well established. Patients with frontotemporal dementia (FTD) - a degenerative condition that affects the frontal and [temporal lobes](#) of the brain - show profound difficulty understanding and expressing emotion. Yet the extent to which such deficits weaken emotional enhancement of memory remains unknown.

To find out, the NeuRA team showed patients images that prompt an emotional reaction in healthy people. Healthy control subjects and patients with Alzheimer's disease remembered more emotional than neutral images. The FTD patients, however, did not.

Professor Piguet says, "Up until now, we knew that emotional memories

were supported by the amygdala, a brain region also involved with [emotion regulation](#). This study is the first to demonstrate the involvement of the [orbitofrontal cortex](#) in this process. This is an important development in how we understand the relations between emotions and memory and the disturbance of the emotional system in this type of dementia."

NeuRA researcher, Fiona Kumfor, says the findings will help carers better understand why their loved ones may find [personal interactions](#) difficult. "Imagine if you attended the wedding of your daughter, or met your grandchild for the first time, but this event was as memorable as doing the groceries. We have discovered that this is what life is like for patients with FTD," says Fiona.

"This is the first study that has looked at memory and emotion together in FTD and that is exciting. We now have new insight into the disease and can demonstrate that [emotional memories](#) are affected differently, depending on the type of dementia.

This information could help us create diagnostic tools and change how we diagnose certain types of dementias and differentiate between them. We have basically found the source of the deficit driving these impairments in patients, which brings us a step closer to understanding what it means to have FTD," she concluded.

More information: The paper 'The Orbitofrontal Cortex is involved in Emotional Enhancement of Memory' has been published in the journal *Brain*.

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