mental health care

reliable and up-to-date information about psychosis for family members and friends
www.mentalhealthcare.org.uk

Institute of Psychiatry King's College London South London and Maudsley NHS Foundation Trust in association with rethink

Scans show changes in brain after cognitive behaviour therapy

Research has consistently shown that cognitive behaviour therapy (CBT) for psychosis can improve symptoms like delusions and help people feel less distressed and anxious. A team of researchers from the Institute of Psychiatry (IoP), King's College London, wanted to find out what happens inside the brains of people who have CBT for psychosis and whether there are any changes as a result of the talking therapy.

What they discovered through the use of brain scanning (using fMRI – functional Magnetic Resonance Imaging) was that parts of the brain involved in responding to threat became less activated in people who had completed a course of CBT for psychosis. The CBT was provided by PICuP (Psychological Interventions Clinic for Outpatients with Psychosis), a service run by South London and Maudsley NHS Foundation Trust.

Researchers think the way people with psychosis respond to a perceived threat may contribute to the delusions they experience: they think the 'fear system' within the brain may incorrectly process perceived threat, which can contribute to the development of delusions and paranoia.

The findings 'suggest that CBT for psychosis promotes the brain to process threats in a less distressing way, thus helping reduce the symptoms,' said Veena Kumari, a professor of experimental psychology at the IoP, who led the research.

She and her colleagues recruited 56 people with a diagnosis of paranoid schizophrenia or schizoaffective disorder who were willing to each have two brain scans – one when they joined the study, and one after six to eight months. Half of the people who agreed to participate in the study went on to have CBT for psychosis in addition to the treatment and care they were already receiving from mental health professionals. The other half continued with their regular treatment and support.

Researchers looked at the activation of different brain regions when people looked at pictures of faces while having the scans. This meant researchers could measure what happened inside the brain while people reacted to expressions depicting different emotions. They were shown angry faces, which could be interpreted as directly threatening, and fearful faces, which could imply there was a threat that others were scared of. They were also shown happy faces and neutral expressions.

Researchers were able to compare the brain scans of the two groups: at the beginning, there were no significant differences, but the second batch of scans showed changes in various brain regions of the people who had been given CBT for psychosis. There was less response in the brain to fearful and angry expressions.

story continues on next page

Supported by wellcome trust

Scans show changes in brain after cognitive behaviour therapy/2

The 'calmer' parts of the brains of people who had had CBT for psychosis included parts that process facial expressions (the inferior frontal gyrus), and parts that are thought to play a role in processing potentially distressing information (the insula).

'This study was not meant to test the efficacy of CBT for psychosis (which is already established) but to observe changes in brain activity over the course of CBT for psychosis,' said Professor Kumari. She said the study provides the first evidence that CBT for psychosis can calm down the brain's response to perceived threat, and that CBT induces changes 'at the neural level'.

Professor Elizabeth Kuipers, who was one of the pioneers of CBT for psychosis and is the founding director of PICuP said: 'It is very exciting to be able to show neural changes after CBT for psychosis that support our idea that reducing reactions to threat is helpful for those with psychosis.'

■ *Neural changes following cognitive behaviour therapy for psychosis: a longitudinal study*
Veena Kumari, Dominic Fannon, Emmanuelle R Peters, Dominic H ffytche, Alexander L Sumich, Preethi Premkumar, Anantha P Anilkumar, Christopher Andrew, Mary L Phillips, Steven CR Williams, Elizabeth Kuipers.
Published online in *Brain* 19 July 2011.

uploaded onto mentalhealthcare.org.uk 26 July 2011

Supported by wellcome trust