

Results Apathetic depressed patients were significantly less anxious and less anhedonic. Apathetic perfused better than non-apathetic in the inferior frontal gyrus ($P=0.022$). We found a significant positive relationship between apathy and perfusion of the left frontal inferior gyrus ($P=0.05$, $r=0.21$). State-anxiety was positively correlated with perfusion of the cingulate cortex, the insula and the left amygdala. Anhedonia was positively correlated with the perfusion of the ventromedial prefrontal cortex, the cingulate cortex and the insula.

Conclusions We have shown that the clinical and perfusional profiles of apathetic depressed and non-apathetic differ. This study suggests the existence of two distinct neurobiological networks for depressed patients; one involving motivational networks for apathetic patients, and another one involving emotional networks for more anhedonic patients.

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EW0698

Brain anatomy of symptom stratification in schizophrenia: A voxel based morphometry study

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Introduction Although some magnetic resonance imaging (MRI) studies have investigated the existence of a relationship between clinical severity and neuroanatomical alterations in patients with schizophrenia (SCZ), the biological signature associated with illness severity in schizophrenia is still uncertain.

Objectives This study aims to investigate structural brain abnormalities in SCZ with particular regards to the identification of potential deficits associated to the severity of illness.

Methods 1.5 T MRI data were acquired for 61 subjects with SCZ and 59 matched healthy controls (HC). The patient group was divided in two subgroups based on clinical severity, one composed by 34 mild-to-moderately ill patients and the other one by 27 severely ill patients, and compared with matched HC.

Results The whole group of patients with SCZ had significantly reduced gray matter (GM) volumes in left inferior and middle temporal gyrus compared to HC ($P<0.05$, pFWE corrected). Furthermore, compared to HC, patients with mild-to-moderate illness showed decreased GM volumes in inferior temporal gyrus ($P<0.05$, pFWE corrected) whereas those with severe illness had reduced right cerebellum ($P<0.05$, cFWE corrected). No differences were observed between the two subgroups of patients.

Conclusions Our results showed significant GM volume reductions in left inferior and middle temporal gyrus in patients with SCZ compared to matched HC, confirming the role of this region in the pathophysiology of SCZ. Furthermore, we identified specific cerebellar gray matter volume reductions in patients with severe illness, which may contribute to stratify patients with SCZ according to their clinical phenotype expression, ultimately helping in guiding targeted therapeutic/rehabilitation interventions.

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EW0699

Neural functional correlates of empathic face processing: An activation likelihood estimation (ALE) meta-analysis of fMRI studies

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Introduction Empathy is evolutionary preserved in social organisms and emotional face processing is one of its measures. Systems possibly active during empathic processing include perspective-taking, basic emotional contagion “mirroring” and “theory of mind” systems.

Objectives fMRI studies help clarifying neural correlates of empathic face processing; ALE meta-analysing fMRI studies allows identification of brain area activation/deactivation during empathy.

Aims To identify brain areas most consistently involved in empathy.

Methods We carried ALE meta-analysis of original studies focusing on cerebral activations during empathic face processing tasks and reporting data on Talairach or MNI space coordinates, converting the former in the latter. An 11-April-2016 PubMed search, using as keywords terms like empathy combined with functional magnetic resonance imaging (fMRI), produced 124 records of which 23 were finally included (568 participants, 247 males and 321 females; mean age 32.2 years). We followed the PRISMA statement. Whole-brain data were meta-analysed; significance was set at $P=0.0001$, uncorrected.

Results ALE meta-analysis of data from 21 experiments (totalling 527 foci) on empathic face processing during experimental task conditions showed that emotional vs. neutral/control conditions significantly correlated with activations of left anterior cingulate cortex (BA 32), right precentral gyrus (BA 6), left amygdala, right superior frontal gyrus (BA 9), left middle occipital gyrus (BA 37), right insula (BA 13), left putamen, and left posterior cingulate cortex (BA 31).

Conclusions Empathy is a complex process correlating with activation of different brain areas, which have been involved in emotional cue processing, self-other/same-different discrimination, perspective-taking, mirror neuron activation, emotional arousal and decision-making.

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