

## W017

### Reward circuits and apathy in schizophrenia: neuroimaging and treatment strategies

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Approximately 50% of patients with schizophrenia shows deficits in motivation and initiation of goal-directed behavior, which are suggestive of reward system dysfunction. We conducted a meta-analysis of neuroimaging studies reporting on the neural correlates of reward processing and negative symptoms in schizophrenia. A significant mean weighted correlation was observed, revealing deficits in activation of reward neurocircuitry. A more specific finding is comprised activation of the ventral striatum, involved in anticipation of reward, and structures that play a critical role in the ability to represent the value of outcomes and plans. In a study of VTA connectivity in the resting state in a large group of patients with schizophrenia, we found reduced connectivity with lateral prefrontal, temporal and parietal regions to be associated with higher degrees of apathy. Apathy belongs to the most debilitating symptoms of schizophrenia and represents a significant unmet need in its treatment. Quantitative integration of published findings suggests that treatment with noninvasive magnetic brain stimulation can improve negative symptoms. Previous PET-studies have shown that such stimulation may target circuits with dopaminergic innervation. A behavioral treatment approach that may also target reward-related circuits will also be discussed briefly. It can be concluded that recent results regarding reward and motivated behavior in schizophrenia have clinical implications and may help develop novel treatment strategies.

*Disclosure of interest* AA received speaker fees from Lundbeck.

<http://dx.doi.org/10.1016/j.eurpsy.2017.01.040>

## W018

### Self-regulation of the dopaminergic reward system via real time fmri neurofeedback in schizophrenia

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*Introduction* Alterations in the mesolimbic dopamine system play a crucial role in the pathophysiology of schizophrenia. However, little is known about potential disturbance in endogenous regulation of neural activity due to cognitive control. Recent research on real-time fMRI (rtfMRI) revealed a novel method to stimulate the substantia nigra and ventral tegmental area (SN/VTA), using positive mental imagery. Importantly, this self-regulation ability could be improved with rtfMRI neurofeedback. For the first time, we applied this innovative method in patients with schizophrenia (SZ) to investigate potential alterations in endogenous regulation of the reward system.

*Methods* 14 (SZ) and 14 healthy controls (HC) were included in this ongoing study. Participants performed a rtfMRI task with abstract visual feedback of neural activity in the SN/VTA. In the active condition, we instructed participants to voluntarily up-regulate SN/VTA activity by recalling rewarding scenes. Neurofeedback learning was correlated with the self-reported negative symptoms.

*Results* In contrast to HC, SZ were not able to actively self-regulate SN/VTA activity. Furthermore, they failed to improve self-regulation with rtfMRI neurofeedback. Importantly, impaired neurofeedback learning was associated with negative symptoms, in particular diminished expression.

*Discussion* Our preliminary results show that self-regulation of SN/VTA activity is impaired in SZ. Although neurofeedback train-

ing improves self-regulation using positive mental imagery in HC, this method might not be suitable as a potential treatment strategy in SZ. The present findings provide new insights to the association between negative symptoms and dopaminergic dysfunction and highlight the strengths and limitation for the use of rtfMRI neurofeedback in schizophrenia.

*Disclosure of interest* The author has not supplied his declaration of competing interest.

<http://dx.doi.org/10.1016/j.eurpsy.2017.01.041>

### Workshop: psychiatry in a globalised world: challenges and possibilities of global mental health

## W019

#### Core competencies for health professionals in global health

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*Introduction* The world is becoming increasingly globalised and this has a major impact on the delivery of healthcare. Issues such as conflict, migration, climate change and technological advances all contribute to this. But are we equipped to deal with the challenges of Global Health?

*Objectives* To discuss the core competencies that health professionals should have in Global Health.

*Methods* The UK's Global Health Curriculum Group (GHCG), a group of healthcare professionals, was commissioned by the Academy of Medical Royal Colleges to lead a consultation on global health competencies. The consultation took the form of a modified Policy Delphi which involved an online survey and face-to-face and telephone interviews over three rounds. Over 250 stakeholders participated, including doctors, other health professionals, policy-makers and members of the public from all continents of the world.

*Results* This study demonstrated broad agreement that global health competence is essential for postgraduate doctors and other health professionals. It identified five core competencies, relevant to the UK and applicable to other parts of the world: (1) diversity, human rights and ethics; (2) environmental, social and economic determinants of health; (3) global epidemiology; (4) global health governance; and (5) health systems and health professionals.

*Conclusions* This framework of five core competencies aims to equip psychiatrists and other doctors with the skills, knowledge and attitudes necessary to practice in a globalised world.

In the workshop we will harness the international nature of the delegates attending the congress to enable a lively debate about the meaning of global mental health and the skills psychiatrists need.

*Disclosure of interest* The authors have not supplied their declaration of competing interest.

<http://dx.doi.org/10.1016/j.eurpsy.2017.01.042>