
DEFAULT MODE NETWORK ACTIVATION IN DEPRESSIVE AND ANXIETY SYMPTOMS

J. Coutinho¹, O. GonÁalves¹, S.V. Fernandes¹, J.M. Soares², L. Maia¹, A. Sampaio¹

¹School of Psychology, University of Minho, Braga, Portugal ; ²Life and Health Sciences Research Institute ICVS-3Bs PT Government Associate Laboratory, University of Minho, Braga, Portugal

Introduction: The default mode network (DMN) is one of the best known resting state networks, which are active when the brain is “at rest” and the individual is not focused on any external demand. The DMN comprises areas of the posterior cingulate cortex (PCC) and adjacent precuneus; the medial prefrontal cortex (MPFC); medial, lateral and inferior parietal cortex and medial temporal cortex. DMN abnormalities have been found in several psychiatry disorders (Broyd et al., 2009) including depression and anxiety where increases in its connectivity namely on the MPFC have been reported (Greicius et al., 2007).

Objectives: The goal of this study was to investigate the relationship between the DMN activation at rest and both anxiety and depressive symptoms.

Methods: Twenty-five participants completed the Hamilton Anxiety and Depression Rating Scales and were submitted to a functional magnetic resonance imaging task-free acquisition in which they were instructed to close their eyes and to think about nothing particular. Independent component analysis was used to extract the DMN maps of each subject and statistical analysis were performed in SPM.

Results: Depression scores correlated positively with the activation of the orbitofrontal gyrus and middle frontal gyrus and negatively with the occipital gyrus, fusiform gyrus, PCC and precuneus. Anxiety scores correlated positively with the activation of the MFPC and ACC and negatively with parietal and temporal areas.

Conclusions: These results provide some support for the role of the DMN particularly its anterior nodes for the ruminative aspects that are common in depressive and anxious individuals.