How do you make me feel better? Social cognitive emotion regulation and the default mode network.

Abstract:
Socially-induced cognitive emotion regulation (Social-Reg) is crucial for emotional well-being and social functioning; however, its brain mechanisms remain poorly understood. Given that both social cognition and cognitive emotion regulation engage key regions of the default-mode network (DMN), we hypothesized that Social-Reg would rely on the DMN, and that its effectiveness would be associated with social functioning. During functional MRI, negative emotions were elicited by pictures, and - via short instructions - a psychotherapist either down-regulated participants’ emotions by employing reappraisal (Reg), or asked them to simply look at the pictures (Look). Adult Attachment Scale was used to measure social functioning. Contrasting Reg versus Look, aversive emotions were successfully reduced during Social-Reg, with increased activations in the prefrontal and parietal cortices, precuneus and the left temporo-parietal junction. These activations covered key nodes of the DMN and were associated with Social-Reg success. Furthermore, participants’ attachment security was positively correlated with both Social-Reg success and orbitofrontal cortex involvement during Social-Reg. In addition, specificity of the neural...
correlates of Social-Reg was confirmed by comparisons with participants' DMN activity at rest and their brain activations during a typical emotional self-regulation task based on the same experimental paradigm without a psychotherapist. Our results provide first evidence for the specific involvement of the DMN in Social-Reg, and the association of Social-Reg with individual differences in attachment security. The findings suggest that DMN dysfunction, found in many neuropsychiatric disorders, may impair the ability to benefit from Social-Reg.