

Trance: Cortical Representations

Results:

Evidence has shown that there are high levels of psychotic experiences in the general population, often not related to mental disorders. We investigated the neural correlates of psychotic experiences in healthy spiritual mediums. An fMRI study was developed with 8 healthy mediums and 6 controls. The mediums entered in mediumistic trance state using a standardized manner; in a control condition they were instructed to re-enact the same mediumistic experience that they had during trance condition but in a non-trance state. Both groups took part in a resting state session. The data was analysed using model-based (GLM) and model-free analysis (ICA). Vivid mediumistic state and deep level of spiritual connection reported by the mediums during trance were associated with stronger activation areas related to sensory and attentional networks compared to re-enactment and rest: lateral occipital cortex, posterior cingulate cortex, temporal pole, middle temporal gyrus and orbitofrontal cortex. We also observed increased functional connectivity within the regions of sensory and auditory resting state networks for mediumistic state compared to control condition. The default mode network (DMN) was identified in all conditions. However, we did not find any change in connectivity within the regions of DMN. Increased activation in cortical sensory and attentional areas during mediumistic state and preserved functional connectivity within the DMN regions might reflect an expression of the non-pathological nature of psychotic experiences in mediums. Possible neural correlates for the generation of sensory experience in the absence of external stimulation are discussed in the context of pathological and non-pathological psychotic experiences.

Area(s) of interest:

fMRI, spiritual and anomalous experiences, psychotic experiences

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