

Neurobiological effects of Lourdes water: An fMRI study

ABSTRACT:

Background

Water from Lourdes (a Catholic pilgrimage site in France) has been associated with medical miracles. From a skeptical point of view, Lourdes's water is a placebo.

Aims

The project investigated neurobiological correlates of the belief in the healing power of Lourdes water.

Method

In the conducted studies (with structural/ functional magnetic resonance imaging/ resting-state functional connectivity; rsFC), participants drank either tap water that was labeled 'Lourdes water' (placebo), water from the sanctuary in Lourdes (verum), or 'tap water' (labeled as tap water; control). Additionally, they evaluated their subjective state (emotions, thoughts, somatic symptoms).

Results

The belief in the miracles of Lourdes was positively associated with brain volume in the temporo-parietal junction (TPJ) and negatively with volume in the medial prefrontal cortex (MPFC). The mentioned brain regions are involved in mentalizing and self-control. The placebo reduced rsFC in the fronto-parietal cognitive control network and increased rsFC in the salience network (insular-cerebellar connectivity). The three groups did not differ in the intensity of reported emotions, thoughts, somatic symptoms, and whole-brain activity during the experiment. After the fMRI session, the placebo group reported increased intensity of bodily sensations (e.g. feelings of warmth, tingling) and positive emotions (e.g., gratefulness).

Conclusions

The findings provide the first evidence that the belief in the miracles of Lourdes is associated with brain activity in large-scale functional networks and brain volume in regions involved in processes related to self-regulation and self-awareness.

Keywords

Lourdes water, Resting state connectivity, Placebo, Magnetic resonance imaging

Published Work:

Schienle, A., Gremsl, A., & Wabnegger, A. (2021). Placebo effects in the context of religious beliefs and practices: A resting-state functional connectivity study. *Frontiers in Behavioral Neuroscience*, 15: 653359. doi: 10.3389/fnbeh.2021.653359

Os textos são da exclusiva responsabilidade dos autores
All texts are of the exclusive responsibility of the authors

Schienle, A., Höfler, C., & Wabnegger, A. (2020). Belief in the miracles of Lourdes: A voxel-based morphometry study. *Brain and Behavior*, 10(1): e01481. doi: 10.1002/brb3.1481

Researcher's Contacts:

Univ.-Prof. Dr. Anne Schienle
University of Graz Clinical Psychology
Universitätsplatz 2/III
A-8010 Graz
Tel.: +43 316 380-5086
Fax: +43 316 380-9808
E-mail: anne.schienle@uni-graz.at