Abstract:

Background

While religious faith remains one of the most significant features of human life, little is known about its relationship to ordinary belief at the level of the brain. Nor is it known whether religious believers and nonbelievers differ in how they evaluate statements of fact. Our lab previously has used functional neuroimaging to study belief as a general mode of cognition [1], and others have looked specifically at religious belief [2]. However, no research has compared these two states of mind directly.

Methodology/Principal Findings

We used functional magnetic resonance imaging (fMRI) to measure signal changes in the brains of thirty subjects—fifteen committed Christians and fifteen nonbelievers—as they evaluated the truth and falsity of religious and nonreligious propositions. For both groups, and in both categories of stimuli, belief (judgments of “true” vs judgments of “false”) was associated with greater signal in the ventromedial prefrontal cortex, an area important for self-representation [3], [4], [5], [6], emotional associations [7], reward [8], [9], [10], and goal-driven behavior [11]. This region showed greater signal whether subjects believed statements about God, the Virgin Birth, etc. or statements about ordinary facts. A comparison of both stimulus categories suggests that religious thinking is more associated with brain regions that govern emotion, self-representation, and cognitive conflict, while thinking about ordinary facts is more reliant upon memory retrieval networks.

Conclusions/Significance

While religious and nonreligious thinking differentially engage broad regions of the frontal, parietal, and medial temporal lobes, the difference between belief and disbelief appears to be content-independent. Our study compares religious thinking with ordinary cognition and, as such, constitutes a step toward developing a neuropsychology of religion. However, these findings may also further our understanding of how the brain accepts statements of all kinds to be valid descriptions of the world.

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Notes
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