

## Do we hallucinate when we sleep?

By definition, hallucinations occur only when we are fully awake state. Yet the similarities to experiences that occur during the transition between sleep and wakefulness; dreams; and incubus phenomena have been known for a long time. In this paper, we make detailed comparisons between hallucinations in clinical groups, and those night-time experiences, at the levels of phenomenology (content, sensory modalities involved, perceptual attributes) and of brain function (brain activations, resting-state networks, neurotransmitter action) using a literature review method.

This examination reveals that the brain is active during sleep and capable of producing spontaneous perceptual material for which awareness is maintained and that these experiences would undoubtedly be classified as hallucinatory if they occurred during waking.

However, important differences exist between hallucinations and sleep related experiences. Most sleep-related perceptions are immersive and largely cut off from reality, whereas hallucination appear alongside regular sense perceptions. Sleep-related perceptions also only involve a subset of the brain neural networks implicated in hallucinations, reflecting perceptual signals processed in a cognitively closed system.

In summary, the two set of phenomena share some phenomenological and neural similarities but sleep-related phenomena are lacking a crucial feature of hallucinations that is the superimposition of real and hallucinated events. This feature which makes people wonder if their eyes/ears are playing tricks, and which leaves them searching for an explanation, is what makes hallucinations truly distinctive, unique and human, and it is missing in these experiences during sleep.

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### Publication

[What Is the Link Between Hallucinations, Dreams, and Hypnagogic-Hypnopompic Experiences?](#)

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