

Your dreams are doing far more than replaying your day, and this study shows why

April 28 2026



Credit: Image generated by the editorial team using AI for illustrative purposes.

Why do dreams sometimes feel vivid and immersive, while at other times they seem fragmented or difficult to interpret? A new study conducted by researchers at the IMT School for Advanced Studies Lucca provides new insights into what determines the content of dreams, showing that both individual characteristics and shared life experiences

play a key role in shaping what we dream.

The research, published in *Communications Psychology*, analyzed over 3,700 reports of dream and waking experiences collected from 287 participants aged 18 to 70. Over a two-week period, volunteers recorded their experiences daily, while researchers gathered detailed information about their sleep patterns, cognitive abilities, personality traits, and psychological characteristics.

What the researchers discovered about dreams

Using advanced natural language processing (NLP) techniques, the team was able to quantitatively analyze the semantic structure of dreams. The findings reveal that dream content is not random or chaotic, but instead reflects a complex interplay between personal traits, such as tendency to mind-wander, interest in dreams, and sleep quality, and external events, including large-scale societal experiences like the COVID-19 pandemic.

When examining the words participants used to describe both their daily lives and their dreams, the research team observed how everyday life is transformed during sleep. Rather than simply replaying waking experiences, dreams appear to reinterpret them. Elements from daily routines, such as work environments, health care settings, or education, do not reappear as they are.

Instead, they are reorganized into vivid, immersive scenarios, often blending together different contexts and shifting perspectives into unfamiliar landscapes. This suggests that dreams do not just reflect reality, but actively reshape it, integrating fragments of past experiences with imagined or anticipated ones to create novel, sometimes surreal, scenarios.

Individual traits shaping dream experiences

These transformations also vary across individuals. For example, individuals more prone to [mind-wandering](#) tended to report more fragmented and rapidly changing dream scenarios, while those who had a strong belief in the value, meaning, and significance of dreaming in general and of their dreams in particular, experienced perceptually richer and more immersive dream content.

Analyses of data collected during the COVID-19 lockdown by researchers at Sapienza University of Rome, and compared with data gathered in the subsequent months and years by the IMT School team, showed that dreams during the lockdown were characterized by heightened emotional intensity and more frequent references to constraints and limitations, reflecting the broader social context.

These effects gradually diminished over time, suggesting that dream content evolves in parallel with psychological adaptation to major life events.

Why this matters for future research

"Our findings show that dreams are not just a reflection of past experiences, but a dynamic process shaped by who we are and what we live through," explains Valentina Elce, researcher at the IMT School and lead author of the paper. "By combining large-scale data with computational methods, we were able to uncover patterns in dream content that were previously difficult to detect."

The study also highlights the potential of artificial intelligence in dream research, demonstrating that NLP models can reliably capture the meaning and structure of dream reports with accuracy comparable to

human independent evaluators. This opens new possibilities for studying consciousness, memory, and mental health in a scalable and reproducible way.

More information: Individual traits and experiences predict the content of dreams, *Communications Psychology* (2026). [DOI: 10.1038/s44271-026-00447-2](https://doi.org/10.1038/s44271-026-00447-2)

Provided by IMT School for Advanced Studies Lucca

Citation: Your dreams are doing far more than replaying your day, and this study shows why (2026, April 28) retrieved 28 April 2026 from <https://sciencex.com/news/2026-04-replaying-day.html>

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