

# Study reveals what sleep talkers have to say

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A team of researchers with members from several institutions in France has conducted a study regarding sleep talking and has found that most sleep talking is not only negative in nature, but involves a large amount of swearing. In their paper published in the journal *Sleep*, the group describes their study, which involved watching and recording hundreds of volunteers as they slept.

Most people talk in their sleep at some point, but as the researchers with this new effort note, not much research has been done to find out what sleeping people have to say. To find out, the group enlisted the assistance of 230 volunteers who agreed to spend two nights sleeping in the researcher's lab while being recorded. Noting that most people do not speak in their sleep very often, the researchers restricted participants to those who had certain sleep disorders that are known to cause sleep talking to happen more often. In their study, the researchers were able to record over 900 sleep talking instances.

In analyzing their data, the researchers found that the sleep talking volunteers said the word "no" four times as often as when they were awake. They also found that the f-word was spoken much more

commonly than while awake—on average 800 times as often.

The team also found that 59 percent of the things the volunteers said in their sleep were undecipherable, and that sleep utterances often were mixed with other noises, such as mumbling or laughter. They also noted that a lot of the things people said while sleeping were aggressive—they describe much of what they heard as "nasty" noting that a lot of it was negative. The researchers also found that when the volunteers talked in their sleep, most spoke in grammatically correct ways, which the team suggests indicates that the neural system is functioning in ways that are similar to when a person is awake.

Though it is not known why people talk in their [sleep](#), or why they say the things they say, the researchers with this new effort note that some theories suggest dreaming is a means of processing threats, which could explain why so many of the words that come out during dreams are negative.

**More information:** Isabelle Arnulf et al. What Does the Sleeping Brain Say? Syntax and Semantics of Sleep Talking in Healthy Subjects and in Parasomnia Patients, *Sleep* (2017). [DOI: 10.1093/sleep/zsx159](https://doi.org/10.1093/sleep/zsx159)

## Abstract

### Objectives

Speech is a complex function in humans, but the linguistic characteristics of sleep talking are unknown. We analyzed sleep-associated speech in adults, mostly (92%) during parasomnias.

### Methods

The utterances recorded during night-time video-polysomnography were analyzed for number of words, propositions and speech episodes, frequency, gaps and pauses (denoting turn-taking in the conversation), lemmatization, verbosity, negative/imperative/interrogative tone, first/second person, politeness, and abuse.

## Results

Two hundred thirty-two subjects (aged  $49.5 \pm 20$  years old; 41% women; 129 with rapid eye movement [REM] sleep behavior disorder and 87 with sleepwalking/sleep terrors, 15 healthy subjects, and 1 patient with sleep apnea speaking in non-REM sleep) uttered 883 speech episodes, containing 59% nonverbal utterance (mumbles, shouts, whispers, and laughs) and 3349 understandable words. The most frequent word was "No": negations represented 21.4% of clauses (more in non-REM sleep). Interrogations were found in 26% of speech episodes (more in non-REM sleep), and subordinate clauses were found in 12.9% of speech episodes. As many as 9.7% of clauses contained profanities (more in non-REM sleep). Verbal abuse lasted longer in REM sleep and was mostly directed toward insulting or condemning someone, whereas swearing predominated in non-REM sleep. Men sleep-talked more than women and used a higher proportion of profanities. Apparent turn-taking in the conversation respected the usual language gaps.

## Conclusions

Sleep talking parallels awake talking for syntax, semantics, and turn-taking in conversation, suggesting that the sleeping brain can function at a high level. Language during sleep is mostly a familiar, tensed conversation with inaudible others, suggestive of conflicts.

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