

# Understanding fear means correctly defining fear itself, study concludes

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Understanding and properly studying fear is partly a matter of correctly defining fear itself, New York University neuroscientist Joseph LeDoux writes in a new essay published in *Proceedings of the National Academy of Sciences*. His analysis points to ways research can be better geared to address a range of fear-related afflictions, such as post-traumatic stress syndrome (PTSD) and commonly experienced phobias.

Much of the current confusion in neuroscience research on [fear](#) stems from the conflation of two separate phenomena that are both labeled "fear": behavioral and physiological fear responses elicited by threats, such as a snake or a mugger, and conscious feelings of fear, which occur in the same situation but are controlled by a different brain system.

"The problem is not the terms but the way we use them," LeDoux writes. "Specifically, problems arise when we conflate terms that refer to conscious experiences with those that refer to the processing of stimuli and control of responses and assume that the brain mechanisms that underlie the two kinds of processes are the same."

The fundamental shortcoming of this confusion, LeDoux observes, is rampant. Findings about the brain circuits that control the behavioral and [physiological responses](#) are assumed to explain how humans experience fear.

"People with anxiety disorders are bothered by the fear and anxiety that they consciously experience," LeDoux says in an accompanying

published interview with *PNAS*. "If we claim we are studying human feelings of fear or anxiety when we measure defense responses, we are giving a false impression. This has significant implications for psychiatry that should be more clearly specified.

"For example, a number of treatments for people with fear and [anxiety disorders](#) are the result of animal work. These treatments change the way implicit systems operate and only indirectly affect conscious feelings. It may sound subtle, but the difference is important. These findings from animal studies are more relevant to behaviorally based therapies than to talk therapies."

In the *PNAS* essay, LeDoux calls for greater precision in how we define fear in order to enhance existing scholarship, which should lead to the creation of superior remedies.

"I am not suggesting that we banish the 'F' word from our scientific vocabulary and research," he concludes. "On the contrary, I think that we need to come to terms with fear because the conscious feeling of fear is a key part of human experience and an important factor in psychopathology.

"Neither am I suggesting that animal research is irrelevant to understanding human conscious feelings of fear. However, we need a conception that allows us to understand how non-conscious processes in other species contribute to conscious fear in humans."

**More information:** Coming to terms with fear,  
[www.pnas.org/cgi/doi/10.1073/pnas.1400335111](http://www.pnas.org/cgi/doi/10.1073/pnas.1400335111)

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