

Study: Tolerance for ambiguity explains adolescents' penchant for risky behaviors

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It is widely believed that adolescents engage in risky behaviors because of an innate tolerance for risks, but a study by researchers at New York University, Yale's School of Medicine, and Fordham University has found this is not the case.

Their findings show adolescents appear to differ from their older peers in the taste for the uncertain. When faced with situations that have highly uncertain outcomes, most age groups react with distaste; adolescents, by contrast, often find these uncertain situations quite tolerable. Rather than having a taste for risk, as is commonly thought, the [risky behaviors](#) of adolescents stem from their comfort with the ambiguous.

These findings, which are reported in the journal the [Proceedings of the National Academy of Sciences](#), point to basic differences between adolescents and adults and offer new insights into how to communicate about risk to teenagers and pre-teens.

"Our findings show that teenagers enter unsafe situations not because they are drawn to dangerous or risky situations, but, rather, because they aren't informed enough about the odds of the consequences of their actions," explained Agnieszka Tymula, a post-doctoral researcher at NYU's Center for Neural Science and one of the study's co-authors.

"Once they truly understand a [risky situation](#), they are, if anything, even more risk averse than adults. The study also offers new possibilities for communicating with this age group—providing adolescents with

statistics highlighting the risks of dangerous behaviors or training that allows them to learn about risks in a safe way, which may be effective in limiting them."

"What we found was that when risks were precisely stated, adolescents avoided them at least as much, and sometimes more, than adults," added Ifat Levy, an assistant professor of [comparative medicine](#) and of neurobiology at the Yale School of Medicine and one of the study's co-authors. "Adolescents were, however, much more tolerant for ambiguity: when risks were not precisely known, they were more willing to accept them compared to adults. Biologically this makes a lot of sense: young organisms need to be open to the unknown in order to gain information about their world."

Studies have previously established that adolescents are more likely than are their older and younger peers to engage in behaviors that, on rare occasions, lead to terrible consequences. Less understood is why this is the case.

To explore this question, the researchers conducted a series of experiments using both adolescents (12-17 years old) and adults (30-50 years old). To isolate age as a factor in the decision-making process, the researchers accounted for differences in non-age demographics, personality type, and intelligence.

In the multi-stage experiment, the subjects had to make a series of financial decisions, with each decision carrying a different degree of risk. In each trial, subjects had to choose between a guaranteed payoff of \$5 and either a risky or ambiguous lottery, in which the payoff ranged from zero to several times the guaranteed payoff.

In each trial, subjects were informed how much they could win in the lottery—\$5, \$8, \$20, \$50, and \$125. In the risky-lottery trials, subjects

were told the exact probabilities of winning the lottery—13 percent, 25 percent, 38 percent, 50 percent, and 75 percent. By contrast, in the ambiguous-lottery trials they were not given precise probabilities of winning, thus making uncertain the level of risk.

Somewhat surprisingly, adolescents accepted significantly fewer risky lotteries than did the adults – they were more risk-averse when the risks they faced were well understood. However, adolescents were significantly more willing than were adults to accept ambiguous lotteries – they chose financially dangerous situations as long as they did not have complete information about the exact risks they faced. The ambiguous-lottery results held even after controlling for other demographic variables, such as gender and personality type, which gauged an individual's propensity to engage in risky behaviors.

"It is not that [adolescents](#) actually choose to engage in risks, but, rather, they are willing to gamble when they lack complete knowledge," the researchers wrote.

Provided by New York University

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