

With increased age comes decreased risk-taking in decision-making

September 30 2013

When faced with uncertain situations, people are less able to make decisions as they age, according to a new study by researchers at Yale School of Medicine. Published in the Sept. 30 *Proceedings of the National Academy of Sciences*, the study also found that older people are more risk-averse than their midlife counterparts when choosing between possible gains, but more risk-seeking when choosing between losses.

Scientists have long-observed that cognitive function improves throughout adolescence, peaks in adulthood, and declines with [age](#), but behavioral changes in decision-making across a lifespan have been largely unstudied. These skills have implications for problems associated with poor decision-making.

Ifat Levy, assistant professor in comparative medicine and neurobiology at Yale, and colleagues recruited 135 healthy participants to study how decision-making functions change across a lifespan by measuring attitudes toward risk and ambiguity between the ages of 12 and 90.

The participants made 320 choices grouped in blocks of gain and loss trials. In gain trials, participants chose between a certain gain of \$5 and a lottery that differed systematically in the amount of a possible monetary gain. Loss trials were identical to gain trials, except all amounts were negative. In one example, a participant faced a choice between losing \$5 for certain, and equal chances of losing \$8 or losing nothing (\$0). This design allowed Levy and her team to estimate attitudes to both known (risky) and unknown (ambiguous) financial risks. By repeating each

choice situation several times, the design also allowed the investigators to estimate how consistent the participants were in the choices they made.

On average, older adults made decisions that resulted in the lowest expected monetary outcomes, compared with midlife participants. Even the healthiest of elders showed profoundly compromised decision-making, and risk attitudes showed systematic changes across the lifespan that the authors say have important policy implications.

"This is an issue of pressing importance that has only received limited attention," said Levy. "It is often assumed that decision-makers at any age have both the right and ability to make their own choices that maximizes their welfare, but our data suggest that this one-size-fits-all approach may be wrong for models that target broad populations."

Levy said this is one of the first studies done on age and preference, but further work needs to be done. "Even though this is a small study, it revealed the existence of important age-related patterns in decision-making," she said.

More information: Like cognitive function, decision making across the life span shows profound age-related changes, *PNAS*, [DOI: 10.1073/pnas.1309909110](https://doi.org/10.1073/pnas.1309909110)

Provided by Yale University

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