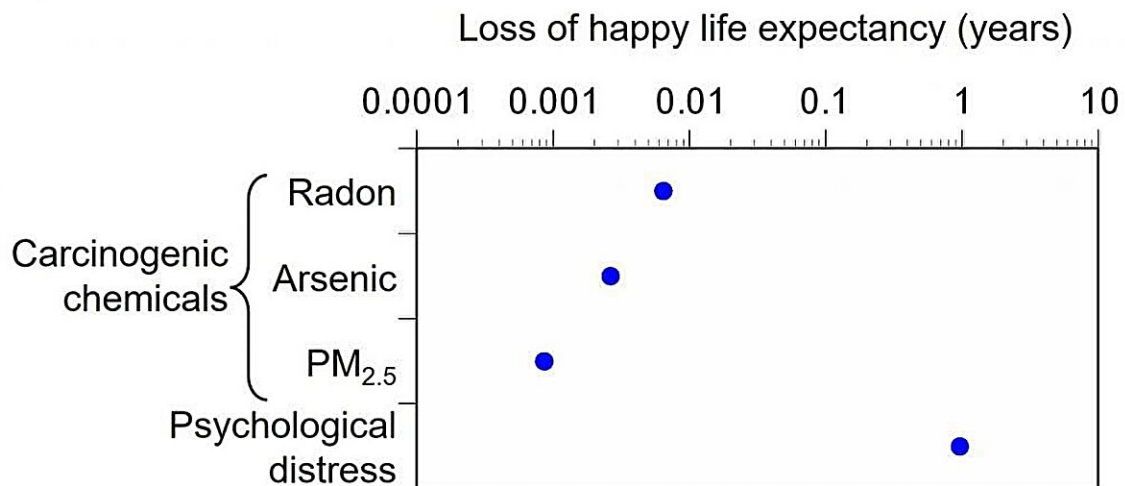


# Exposure to common environmental carcinogens decreases lifespan happiness, study finds

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Loss of happy life expectancy for carcinogenic chemicals and psychological distress. PM<sub>2.5</sub> represents the value in 2020. Credit: *Environmental Research* (2024). DOI: 10.1016/j.envres.2024.118637

If improving your outlook on life really was as simple as "don't worry, be happy," then keeping your spirits up would be a piece of cake. Unfortunately, it's not so simple, as a multitude of factors beyond our control can affect our mood.

In a study [published](#) in March in *Environmental Research*, researchers from Osaka University have revealed that contaminants in the environment can have an effect on our emotional well-being lifespan.

A recently developed risk assessment tool defined happy life expectancy as the lifespan during which a person experiences subjective emotional well-being, while loss of happy life expectancy (LHpLE) was defined as a decrease in the length of positive emotional experiences in an individual's life. LHpLE is calculated by combining both the reduction in happiness and the increase in mortality associated with risk exposure.

"We previously used the LHpLE indicator to evaluate [psychological distress](#) and [cancer risk](#) associated with [radiation exposure](#) after the Fukushima Daiichi Nuclear Power Station accident, among other situations," says lead author of the study Michio Murakami. "However, this tool has not been used to assess the effects of cancer or exposure to environmental carcinogens on happiness."

To address this, the researchers surveyed Japanese people to determine their average happiness by age and sex, and evaluate whether cancer reduces emotional happiness. Then, LHpLE was calculated for exposure to common environmental cancer-causing agents in Japan, as well as psychological distress, allowing comparison of the different types of risk exposure.

"The results were intriguing," explains Shuhei Nomura, one of the study's authors. "We found that emotional happiness did not decrease significantly in those with cancer, nor was there any significant association between emotional happiness and cancer type, history, or stage."

Overall, exposure to environmental carcinogens decreased the emotional happiness lifespan by 0.0064 years for radon, 0.0026 years for arsenic,

and 0.00086 years for [fine particulate matter](#) in the air, due to their mortality. The decrease in emotional happiness was even more pronounced for psychological distress, which resulted in an LHpLE of 0.97 years.

"Our findings suggest that exposure to carcinogens and psychological distress significantly decrease lifetime happiness," says Murakami.

Given the clear decrease in emotional happiness lifespan associated with carcinogens, the findings from this study suggest that environmental policies should focus on reducing exposure to these chemicals. Applying this understanding to public health policies could help people live longer, happier lives.

**More information:** Michio Murakami et al, Comparing the risks of environmental carcinogenic chemicals in Japan using the loss of happy life expectancy indicator, *Environmental Research* (2024). [DOI: 10.1016/j.envres.2024.118637](#)

Provided by Osaka University

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