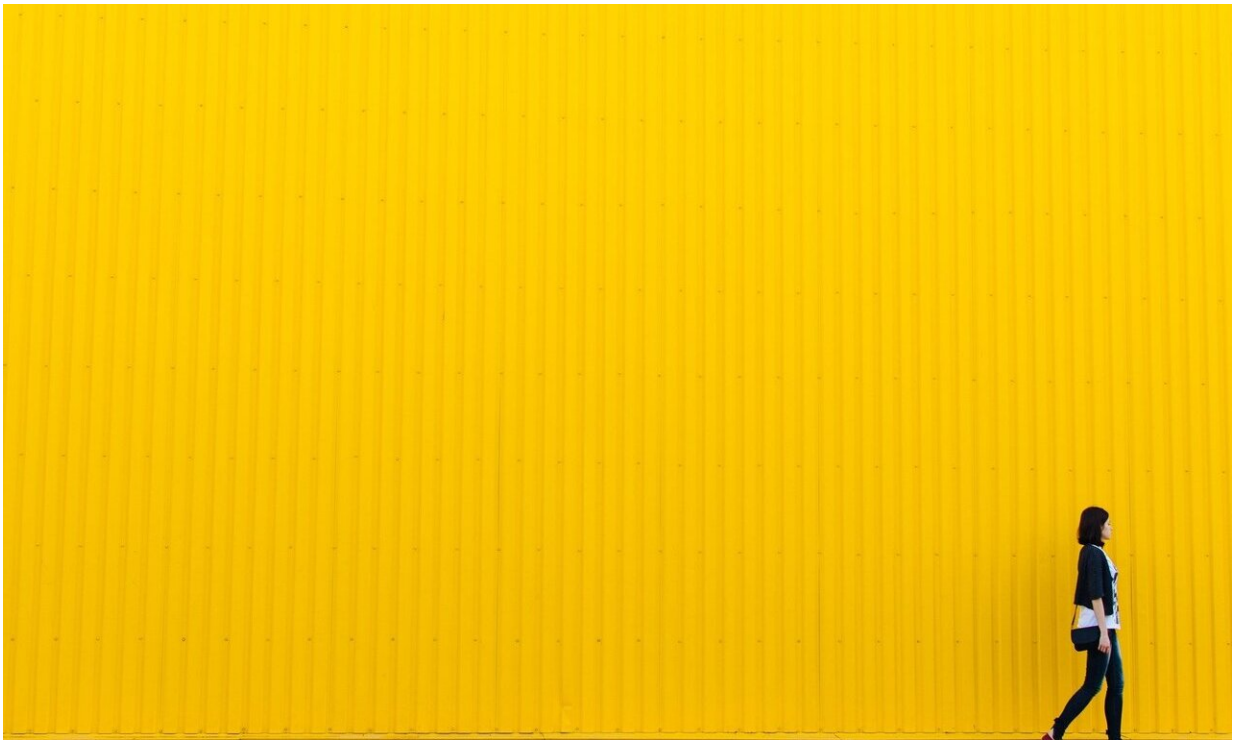


Childhood lead exposure may adversely affect adults' personalities

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Lead exposure in childhood may lead to less mature and less healthy personalities in adulthood, according to a new study lead by psychology researchers at The University of Texas at Austin.

The study, published in the *Proceedings of the National Academy of*

Sciences, sampled more than 1.5 million people in 269 U.S. counties and 37 European nations. Researchers found that those who grew up in areas with higher levels of atmospheric lead had less adaptive personalities in adulthood—lower levels of conscientiousness and agreeableness and higher levels of neuroticism.

"Links between lead exposure and personality traits are quite impactful, because we take our personalities with us everywhere," said Ted Schwaba, a postdoctoral fellow in the Department of Psychology at UT Austin. "Even a small negative effect of lead on [personality traits](#), when you aggregate it across millions of people and all the daily decisions and behaviors that our personality influences, can have really massive effects on well-being, productivity and longevity."

In the study, researchers linked historical atmospheric lead data from the Environmental Protection Agency to online personality questionnaire responses from people who grew up in the sampled locations. Results showed that adults who were raised in U.S. counties with higher levels of atmospheric lead were less agreeable and conscientious and, among adults in their 20s and 30s, more neurotic than those who had less lead exposure during childhood.

"These three traits—conscientiousness, agreeableness and low neuroticism—make up a large part of what we would consider a mature, psychologically healthy [personality](#) and are strong predictors of our success or failure in relationships and at work," Schwaba said.

"Normally, across the lifespan, people become more conscientious and agreeable, and less neurotic."

To further test whether lead exposure causes these differences, the researchers examined the effects of the 1970 Clean Air Act, finding that people born after atmospheric lead levels began to decline in their counties had more mature, psychologically healthy personalities in

adulthood than those born before their counties phased out lead-based products.

To ensure these findings weren't simply reflecting cohort effects—characteristics resulting from shared historical or social experiences—researchers replicated their study in Europe, where lead was phased out later than in the U.S. There, they found that people who grew up in areas with more atmospheric lead were also less agreeable and more neurotic in adulthood, although the findings regarding conscientiousness did not replicate.

"For a long time, we've known lead exposure is harmful, but each new wave of research seems to identify new ways in which lead exposure harms society," Schwaba said. "Though there's much less lead in the atmosphere today, lead remains in pipes, the topsoil and groundwater. And these sources of lead exposure tend to disproportionately harm people of color—Black children are twice as likely to have high levels of lead in their blood as white children. From an economic standpoint, from a social justice standpoint, or really any way you look at it, it's incredibly important to limit [lead exposure](#) as much as possible."

More information: Ted Schwaba et al., "The impact of childhood lead exposure on adult personality: Evidence from the United States, Europe, and a large-scale natural experiment," *PNAS* (2021).

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