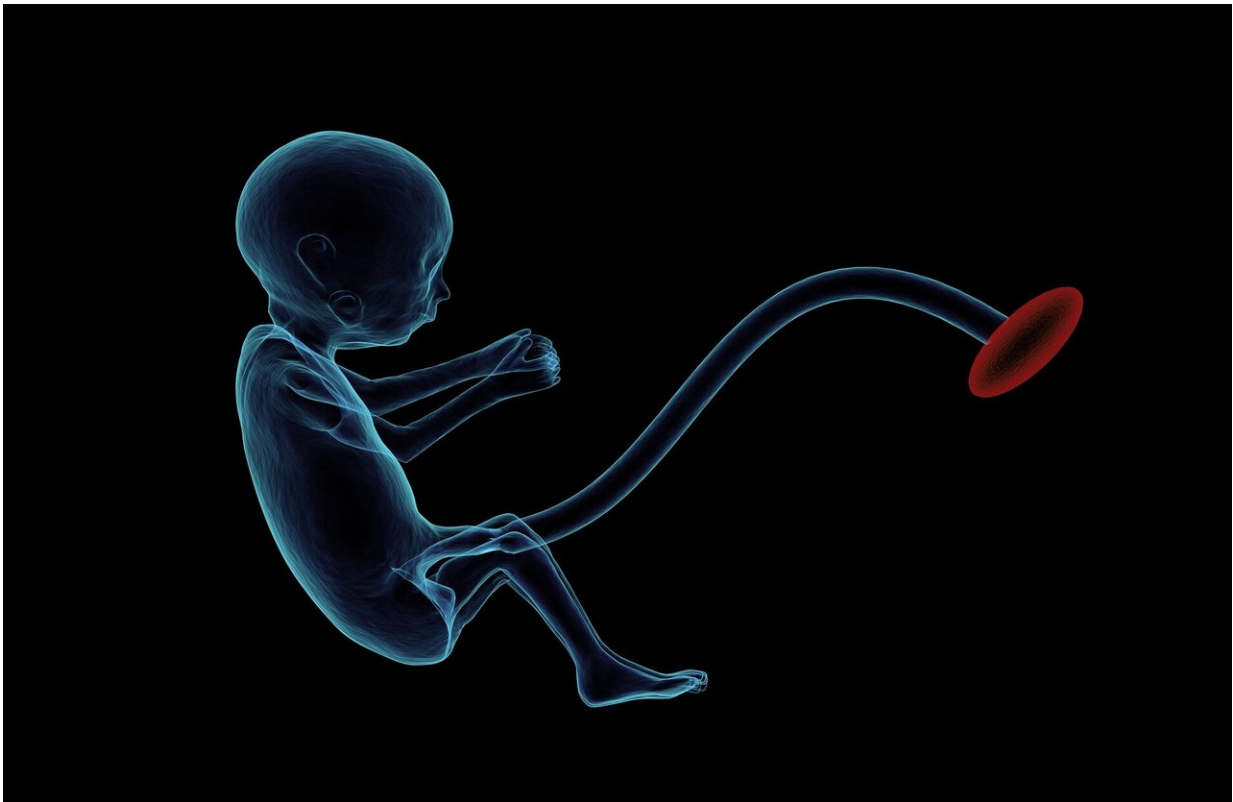


Early-life lead exposure linked to higher risk of criminal behavior in adulthood

August 1 2023



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An evaluation of 17 previously published studies suggests that exposure to lead in the womb or in childhood is associated with an increased risk of engaging in criminal behavior in adulthood—but more evidence is needed to strengthen understanding. Maria Jose Talayero Schettino of

the George Washington University, U.S., and colleagues present these findings in the open-access journal *PLOS Global Public Health*.

Lead exposure can cause a variety of health challenges, such as cardiac issues, [kidney damage](#), immune system dysfunction, reproductive problems, and impaired neurodevelopmental function in children. Research has also uncovered statistical associations between lead exposure and criminal [behavior](#), both at the level of the entire population and at the level of individual people. However, the findings of individual-level studies have been inconsistent.

To help clarify the existing evidence, Talayero Schettino and colleagues conducted a systematic review of studies that address links between individual lead exposure and crime or other antisocial behaviors. Their analysis included 17 studies, which employed a variety of methods for measuring lead exposure—using blood, bones, or teeth—and addressed the effects of exposure at different ages, including in the womb or early childhood, later childhood, and adolescence or adulthood.

The review highlighted a wide range of findings among the studies. For instance, in some cases, no statistical links were found between early childhood lead exposure and later delinquent behavior. One study showed a link between exposure and antisocial behavior, but not arrests. Still, several studies found links between early childhood exposure to lead and later arrests, including drug-related arrests. The authors also used a tool called ROBINS-E to evaluate each study for statistical bias, finding some studies to be more statistically robust than others.

Overall, in light of the known biological effects of lead, this review suggests that an individual exposed to lead in the womb or in [early childhood](#) may have a higher risk of engaging in criminal behavior as an adult.

On the basis of their findings, the researchers note a need for more individual-level evidence to be collected in order to deepen understanding of the associations seen in the 17 studies they reviewed. However, policy action to prevent lead exposure is of paramount importance to safeguard public health.

The authors add, "Policy action to prevent lead exposure is of utmost importance as our research shows an excess risk for [criminal behavior](#) in adulthood exists when an individual is exposed to lead in utero or during childhood. Preventing [lead exposure](#) is crucial to safeguard [public health](#) and promote a safer society for all."

More information: Talayero MJ, The association between lead exposure and crime: A systematic review, *PLOS Global Public Health* (2023). [DOI: 10.1371/journal.pgph.0002177](https://doi.org/10.1371/journal.pgph.0002177)

Provided by Public Library of Science

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