

# Children exposed to lead three times more likely to be suspended from school

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Children who are exposed to lead are nearly three times more likely to be suspended from school by the 4th grade than children who are not exposed, according to a new University of Wisconsin-Madison study funded jointly by the Robert Wood Johnson Foundation and the Wisconsin Partnership Program Education and Research Committee.

"Students who are suspended from school are at greater risk of dropping out, twice as likely to use tobacco, and more likely to engage in [violent behavior](#) later in life," says first author Michael Amato, a [doctoral candidate](#) in psychology and the Nelson Institute for Environmental Studies at UW-Madison. "Our study found that [children](#) exposed to [lead](#) were more than twice as likely to be suspended in the 4th grade, which means that lead may be more responsible for school discipline problems than many people realize."

Nationally, African-American students are three times more likely to be suspended than white students. The same discipline gap was found in the Wisconsin study, but 23 percent of the disparity was explained by differences in rates of lead exposure. Many previous studies have documented disparities in school discipline, but few have specified the underlying factors.

"We knew that lead exposure decreases children's abilities to control their attention and behavior, but we were still surprised that exposed children were so much more likely to be suspended," said Sheryl Magzamen, a public health researcher who also worked on the UW-

Madison study. Magzamen is now an assistant professor at the University of Oklahoma.

Researchers cross-referenced [medical data](#) of nearly 4,000 children exposed to lead with 4th grade disciplinary records in the Milwaukee school district. They found that children who had been exposed to lead were nearly three times more likely to be suspended in the fourth grade than children who had not been exposed, even after controlling for income, race/ethnicity, and gender.

Experiments on non-human animals prove that [lead exposure](#) causes decreased attention and decreased control over behavior when subjects are startled or touched. The study team reasoned that if exposed children were affected the same way, they would be more likely to engage in disruptive classroom behaviors that could result in suspension. The results of the study supported that hypothesis.

"Children exposed to lead don't get a fair start and it affects them for their whole lives," adds study coauthor Colleen Moore, a UW-Madison psychology professor emerita affiliated with the Nelson Institute.

According to the Centers for Disease Control and Prevention, African-American children are more than twice as likely as whites to have elevated lead levels. The reason, say the researchers, is that African-American children are more likely to live in lower-income neighborhoods and rental housing where lead remains in the buildings and soil, a common situation in major American cities.

Moore notes that in the city of Milwaukee, lead abatement orders are currently active in more than 100 residential properties. "It would be great to see more landlords get on board to make their housing lead-safe," she said. "Future generations depend on it."

"Everyone agrees there is a big problem with disparities in education," says Amato. "This study shows that lead is a part of the problem. There is only one way to reduce lead's harmful effects, and that is to remove it from the environments where children live and play."

Provided by University of Wisconsin-Madison

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