

Ambient air pollution and Attention Deficit Hyperactivity Disorder (ADHD) among children

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Abstract:

Attention Deficit Hyperactivity Disorder (ADHD) is the most commonly diagnosed neurobehavioral disorder of childhood. Animal studies suggest that traffic-related air pollution may have adverse neurologic effects, but studies of neurobehavioral effects in children are still in need. The purpose of this study is to assess the potential adverse health effects of air pollution during maternal pregnancy related to childhood ADHD. There are two databases used in this study: 1) Longitudinal Health Insurance Database 2005 (LHID2005) and 2) Environmental Protection Agency (EPA) air monitoring database. Geographic Information Systems (GIS) will be used in estimating air pollution exposure. Furthermore, Cox proportional hazard regression models will be used in adjusting sex, geographic area, urbanization level, household Environmental Tobacco Smoking (ETS) exposure and lead concentrations in air. All statistical analyses will be performed with the SAS version 9.3 (SAS Institute, Cary, NC, USA). A p-value of less than 0.05 is set to declare statistical significance. The results showed that air pollution could be related to childhood ADHD, especially traffic-related air pollution. Air-pollutant trimester-specific effect was found. Further research is suggested.