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To determine the association of four upper air indicators and seven air pollutants with Attention Deficit Hyperactivity Disorder (ADHD) in elementary school children in Pennsylvania over a three-years periode

Objective: The objective of the study is to determine the association of four upper air indicators and seven air pollutants with Attention Deficit Hyperactivity Disorder (ADHD) in elementary school children in Pennsylvania over a three-year period.

Method: An ecological study design that included records of 168,825 children from elementary schools distributed in 49 Pennsylvania counties was used. The number of children with ADHD exacerbations was extracted from online software specifically designed to record health conditions in schools. Daily measurements of air pollutants and upper air indicators were gained from the US Environmental Protection Agency and from the University of Wyoming, respectively. Generalized estimating equation models with Poisson regression as well as a one-way ANOVA were used in the analysis.

Result: The number of ADHD exacerbations significantly increased over the 3-year period [163.9 ($\pm$70.1) in 2008, 317.2 ($\pm$84.4) in 2009, and 427 ($\pm$101.4) in 2010]. Although exacerbations of ADHD fluctuated among months of each year, summer had the lowest number of exacerbations [233.05 ($\pm$111.3)], while fall had the highest [367.81($\pm$96.8)]. Further, the difference in the number of ADHD exacerbations among the three years and among the four seasons for all years were statistically significant ($P<0.001$). Five air pollutants SO_2, CO, NO_2, $PM2.5$, $PM10$ and one upper air indicator were significant in the model and no interactions among predictors were significant.

Conclusion: Upper air indicators and pollutants were useful tools to predict ADHD in school children, which help parents and school administration to take appropriate precautionary actions.

Biography

Rami Saadeh is an Assistant Professor in Jordan University of Science and Technology in Jordan. He earned his Bachelor of Dental Surgery (BDS) from Jordan, MSPH from Tulane University in Louisiana, US and PhD in Environmental Health and Epidemiology from Indiana University, US, and has a specialty in Dental Public Health from the University of Texas Health at San Antonio, Texas, US. He worked as a Dentist in small villages and Palestinians' refugee camps in Jordan, taught Public Health courses for years in Jordan, Saudi Arabia, and the US, and worked as the State Oral Health Epidemiologist in West Virginia. His research focuses on children and disadvantaged populations. His passion is to support equity in healthcare, and he is eager to see low socioeconomic populations gain equitable access to health care.

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