Reduced Air Pollution Improves Children’s Health

Recently published WHO report “Effects of Air Pollution on Children’s Health and Development”, demonstrates that children are particularly sensible to air pollution exposure. In particular, the report shows that pre- and post-natal exposure to air pollution lead to increasing respiratory infections, caught, bronchitis, allergies, and asthma, with increased risk of respiratory deaths in newborn children.

Although numerous studies have reported adverse effects of air pollution on children’s health, only a few investigated the expected beneficial effects of air pollution reduction on respiratory health of children. In order to fill this gap and to provide additional scientific evidence of cause-effect relationship between air pollution and children’s health, Swiss researchers have investigated whether a rather modest decline in air pollution levels in the 1990s in Switzerland was associated with a reduction in respiratory symptoms and diseases in school children. The findings of their study clearly show that the reduction of air pollution exposures contributes to improved respiratory health in children.

This health assessment was conducted from 1992 to 2001 and included more than 9000 children aged from 6 to 15 years from nine Swiss communities covering a broad range of urbanisation and air pollution levels. For all participating children, the researchers collected identical parent-completed questionnaires on health status, family history of disease, spare-time activities, indoor exposures, and residential situation. An estimate of regional level of air pollution (in terms of particulate matter with a diameter inferior to 10 µg/m³ – PM₁₀) was assigned to each child in 1993 and its change was determined during the survey. These estimates were based on PM₁₀ levels obtained from the corresponding fixed monitoring station in each community.

Across the nine studied regions, PM₁₀ levels have decreased by 29% from 1993 to 2000. Adjusted for socioeconomic, health-related, and indoor factors, the declining PM₁₀ was associated with declining prevalence of chronic cough, bronchitis, nocturnal dry cough, and conjunctivitis symptoms. The reduction on prevalence rates was larger in areas with stronger decrease in PM₁₀ levels. However, no threshold of adverse effects of PM₁₀ was apparent since the beneficial effects have been observed even for relatively small changes of air pollution levels. On the other hand, changes in prevalence of sneezing during pollen season, asthma, and hay fever were not associated with the PM₁₀ reduction.

Based on the results of their study, the authors conclude that pollution abatement measures implemented in Switzerland in the 1990s have successfully contributed to improved respiratory health in Swiss school-children. Nevertheless, they point out that children’s health can be further improved since in urban regions and in the proximity of streets with high traffic volume, current PM₁₀ levels still exceed limit values of the Swiss Clean Air Act.


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