‘Not safe even at home, indoor air equally harmful’

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Indoor air pollutants are increasingly being associated with respiratory illness in humans, states a study conducted by the Vallabhbhai Patel Chest Institute, Delhi University.

The study has indicated that concentration of some contaminants is higher indoors than outdoors.

Among the main indoor air pollutants that are responsible for respiratory morbidity and mortality are particulate matter, sulphur dioxide, nitrogen dioxide, carbon monoxide, benzene, ammonia, chloroform, formaldehyde, benzopyrene and bio-pollutants.

The in-charge of the study, Dr. Raj Kumar, professor and head of the National Centre for Allergy, Asthma and Immunology at the Vallabhbhai Patel Chest Institute, said: “Sources of these pollutants include combustion by-products, environmental tobacco smoke, carpets, paints, building construction materials, transportation, incinerators, industrial exhaust and almost every manufacturing process.’’

“These indoor air pollutants can lead to serious public health problems, including asthma, chronic bronchitis, irritation of lungs, pneumonia, decreased resistance to respiratory infection, chronic obstructive pulmonary disease, chronic cough, phlegm production, allergy, headache, fatigue, lung cancer and premature death,’’ he added.

High particle concentration was associated with substantial short-term increases in morbidity and mortality in the research.

The study further added that poor indoor quality is now being associated acute respiratory infections in children in developing countries.

Stating that there is growing evidence that evaluation of indoor as well as outdoor exposures to air pollution is essential for realistic health effect’s assessment, the study noted: “If indoor exposures are not taken into account in epidemiologic investigations of air pollution, systematic and random biases may give rise to spurious conclusions. Total personal exposures are often better correlated with indoor than with outdoor concentrations.”

Concerns about potential public health problems due to indoor air pollutants are based on evidence that urban residents typically spend more than 90 per cent of their time indoors.

Meanwhile, environmental tobacco smoke (ETS) is also seen as a major source of indoor air contaminants.

ETS is composed of sidestream and mainstream smoke. Sidestream smoke, which is emitted from the burning end of a lit cigarette, contains the same compounds found in mainstream smoke, which is inhaled into the smoker’s lungs and exhaled.

“In fact, many of the 4,000 known compounds and more than 40 known carcinogens found in MS are present in greater concentrations in SS. This fact supports the potential for adverse health outcomes associated with intensive and or protracted exposure to ETS,’’ noted the study.

Furthermore, increased levels of some of the known constituents of ETS have been measured in exposed non-smokers and vary, in part, with room size, ventilation, number of smokers and rate of smoking.

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