

Building-related respiratory symptoms can be predicted with semi-quantitative indices of exposure to dampness and mold

Park JH¹, Schleiff PL, Attfield MD, Cox-Ganser JM, Kreiss K

Author information

¹National Institute for Occupational Safety and Health, Division of Respiratory Disease Studies, Field Studies Branch, Morgantown, WV 26505, USA. gzp9@cdc.gov

Abstract

Using a semi-quantitative mold exposure index, the National Institute for Occupational Safety and Health (NIOSH) investigated 13 college buildings to examine whether building-related respiratory symptoms among employees are associated with environmental exposure to mold and dampness in buildings. We collected data on upper and lower respiratory symptoms and their building-relatedness, and time spent in specific rooms with a self-administered questionnaires. Trained NIOSH industrial hygienists classified rooms for water stains, visible mold, mold odor, and moisture using semi-quantitative scales and then estimated individual exposure indices weighted by the time spent in specific rooms. The semi-quantitative exposure indices significantly predicted building-related respiratory symptoms, including wheeze [odds ratio (OR) = 2.3; 95% confidence interval (CI) = 1.1-4.5], chest tightness (OR = 2.2; 95% CI = 1.1-4.6), shortness of breath (OR = 2.7; 95% CI = 1.2-6.1), nasal (OR = 2.5; 95% CI = 1.3-4.7) and sinus (OR = 2.2; 95% CI = 1.2-4.1) symptoms, with exposure-response relationships. We found that conditions suggestive of indoor mold exposure at work were associated with building-related respiratory symptoms. Our findings suggest that observational semi-quantitative indices of exposure to dampness and mold can support action to prevent building-related respiratory diseases.

PRACTICAL IMPLICATIONS:

Current air sampling methods have major limitations in assessing exposure to mold and other biological agents that may prevent the demonstration of associations of bioaerosol exposure with health. Our study demonstrates that semi-quantitative dampness/mold exposure indices, based solely on visual and olfactory observation and weighted by time spent in specific rooms, can predict existence of excessive building-related respiratory symptoms and diseases. Relative extent of water stains, visible mold, mold odor, or moisture can be used to prioritize remediation to reduce potential risk of building-related respiratory diseases. From a public health perspective, these observational findings justify action to correct water leaks and repair water damage in order to prevent building-related respiratory diseases. This approach can also be a basis for developing practical building-diagnostic tools for water-incursion.

PMID: 15500636

Source: <https://www.ncbi.nlm.nih.gov/pubmed/15500636>