

Editorial

Update on Thirdhand Smoking: What Next to Do?

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Tobacco consumption remains one of the most important public health issues globally, especially in developing countries, affecting millions of lives. Tobacco use is not only responsible for more than 8 million deaths each year but also poses severe economic, social, and environmental challenges.⁽¹⁾ While firsthand and secondhand smoking (SHS) have received widespread attention from researchers, as well as in public health policies and interventions, the less visible yet significant concern of thirdhand smoking (THS) is increasingly coming to light. THS refers to the persistent residue of smoke, nicotine, and other toxic chemicals left on indoor surfaces, which adhere to dust and are re-emitted into the air after tobacco smoke has dissipated. This residual contamination, often persistent and challenging to remove, can interact with common pollutants to form secondary toxicants, posing a risk to public health.⁽²⁾

Recent studies have expanded our understanding of THS, shedding light on its persistence, chemical complexity, health implications, and awareness levels among people. THS residues settle on the human body and various surfaces such as walls, furniture, carpets, curtains, and even food, remaining active for months and posing a hidden yet significant health risk, particularly in poorly ventilated environments.⁽³⁾ The chemical interactions of THS further amplify its dangers, as tobacco residue reacts with indoor air pollutants like ozone and nitrous acid, forming secondary pollutants such as carcinogenic nitrosamines. These harmful compounds found in THS can contribute to health damage, including respiratory and cardiovascular conditions, oxidative stress, and potential DNA damage. Unlike firsthand and secondhand smoke, thirdhand smoking (THS) exposes individuals to pollutants through inhalation, ingestion, and dermal absorption, posing health risks across all ages, including increased susceptibility to cardiovascular and pulmonary diseases like lung cancer.⁽⁴⁾ Vulnerable populations, especially children and pregnant women, face the highest risks due to their increased susceptibility to these toxic exposures.

Addressing THS presents several challenges, primarily due to its subtle and often overlooked nature. Many individuals, including both smokers and nonsmokers, remain unaware of the risks associated with THS, leading to a significant gap in public knowledge. Existing tobacco control policies largely focus on active smoking and secondhand smoke, neglecting the persistent residues left by tobacco smoke on surfaces, food, furniture, and dust. The detection and remediation of THS require advanced tools and intensive cleaning methods, further complicating mitigation efforts. Additionally, behavioral barriers persist, as smokers often underestimate the long-term impact of smoking indoors or in vehicles. To tackle these issues, a multidisciplinary approach is necessary,

involving researchers, policymakers, educators, and community stakeholders. Expanding research on the health effects of chronic THS exposure, improving detection methods, and developing scalable remediation strategies are critical. Public awareness campaigns should emphasize the persistence of THS and encourage smoke-free environments for all people. Furthermore, investments in better cleaning technologies and targeted support for vulnerable populations, such as subsidized cleaning services for low-income families and enhanced healthcare guidance, can help reduce THS exposure risks.

Recognizing thirdhand smoking as a public health concern marks a crucial move in tobacco control. As research reveals more about its risks, integrating THS into policies, community practices, and individual behaviors is essential. The public health community must go beyond visible tobacco harms to address its lingering effects, prioritizing THS in regulations, awareness campaigns, and remediation efforts. There is a need to investigate the level of knowledge among different age groups, ensuring that people have a minimum level of awareness of the harms of smoking and can play a key role in raising public awareness of this issue.

Ethics Approval

Not Required.

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Competing Interests

The authors declare no conflict of interest.

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Underlying Data

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