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Air Pollution Increases Deaths Associated with Smoking

ISGlobal study analyses the effects of exposure to fine particulate matter (PM 2.5) in smokers and non-smokers.

Smokers have a **higher risk** of **dying** from **cardiovascular disease** when exposed to higher levels of **air pollution**. This was the conclusion of a study from the [Barcelona Institute of Global Health \(ISGlobal\)](#), a centre supported by the “la Caixa” Foundation, which analysed the effects of exposure to fine particulate matter (PM 2.5) in smokers and non-smokers.

The authors of the [study](#) published in the journal *Environmental Research* explain that their earlier research had demonstrated a supra-additive relationship between **PM 2.5 and cigarette smoking for lung cancer mortality**. The aim of the recent study was to establish whether the combination of both of these exposures increases cardiovascular mortality.

This study is based on data relating to almost half a million American smokers and never smokers aged 30 years or older who took part in the American Cancer Society's Cancer Prevention Study-II.

ISGlobal researcher Michelle C. Turner—first author of the study—explains the conclusion: “adding the risk of air pollution to that of smoking **increases the risk of dying from cardiovascular disease and diabetes**, although the supra-additive effect is smaller than in the case of lung cancer”.

The authors estimated that 318 cardiovascular and diabetes deaths for every 100,000 person-years are attributable to smoking and 36 to higher exposure to PM 2.5. An additional **32 deaths were estimated to be due to the interaction between smoking and PM 2.5**.

Turner considers that “with the levels of PM 2.5 observed in this study, a reduction in smoking would have a **greater positive impact on mortality** than a reduction in exposure to air pollution”. However, a reduction in PM 2.5 would nonetheless contribute to preventing some of the mortality attributed to cigarette smoking.

Reference

Turner MC, Cohen A, Burnett RT, Jerrett M, Diver WR, Gapstur SM, Krewski D, Samet JM, Pope CA III. [Interactions between cigarette smoking and ambient PM2.5 for cardiovascular mortality](#). Environ Res. 2017 Apr;154:304-310. doi: 10.1016/j.envres.2017.01.024.

About ISGlobal

The Barcelona Institute for Global Health, ISGlobal, is the fruit of an innovative alliance between the “la Caixa” Foundation and academic and government institutions to contribute to the efforts undertaken by the international community to address the challenges in global health. ISGlobal is a consolidated hub of excellence in research that has grown out of work first started in the world of health care by the Hospital Clínic and the Parc de Salut MAR and in the academic sphere by the University of Barcelona and Pompeu Fabra University. The pivotal mechanism of its work model is the transfer of knowledge generated by scientific research to

practice, a task undertaken by the institute's Education and Policy and Global Development departments. ISGlobal a member of the CERCA programme of the Generalitat de Catalunya.

ISGlobal's Press Office

Marta Solano

marta.solano@isglobal.org

003493 214 73 33 / 0034661 45 16 00

Pau Rubio

pau.rubio@isglobal.org

003493 214 73 33 / 0034696 91 28 41

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