Breathing others' smoke

Synthesising the evidence on the associations between second-hand smoke (SHS) and mental health outcomes

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Introduction

31% **of the European population is exposed to SHS**

- Involuntary inhalation of tobacco smoke
- Contains many of the same carcinogens as active smoking
- Can cause similar physical effects, e. g. lung cancer
- Mental health effects remain insufficiently understood

Methods

- An umbrella review was conducted with focus on the association between environmental chemicals and mental health outcomes
- Systematic search for reviews and meta-analyses (2015–2025) in PubMed, Scopus, and PsycINFO
- Excluded: neurodegenerative and neurodevelopmental disorders
- SHS was one of four major pollutant groups
- Out of 49* identified reviews 13 focused on SHS

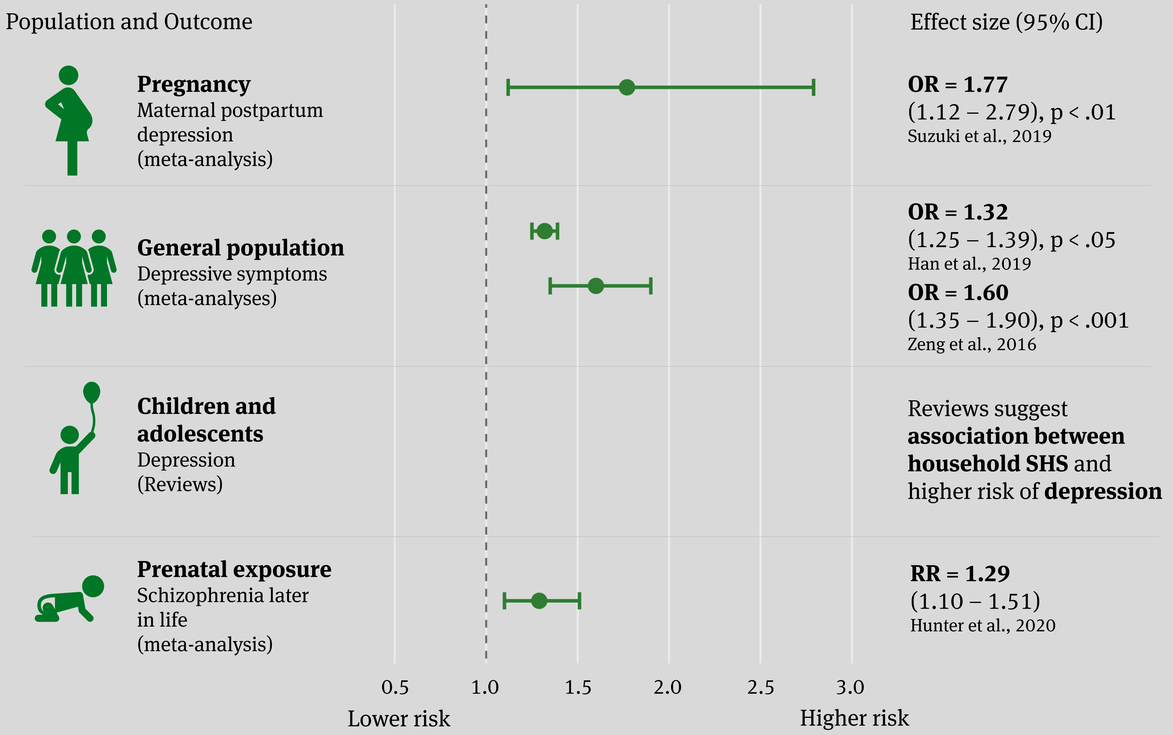
Metals (mostly lead)	Second-hand smoke	Endocrine-disrupting chemicals	Pesticides
n = 26	n = 13	n = 11	n = 8

*Exposure-specific numbers sum to more than 49, as some reviews covered multiple exposures

Results

Association between SHS exposure and mental health outcomes

Selected examples from the identified evidence



Key limitations

- Predominance of cross-sectional studies
- Exposure often assessed by self-report
- Potential reporting bias (e.g. socially desirable answers)
- Higher exposure estimates based on biomarkers than self-report

Self-report
„I am exposed to SHS"

vs.

Biomarker
Objective exposure measurment

Second-hand smoke is a preventable risk

No-smoking policies → Less involuntary exposure → Potentially better mental health

Read the full report

About me



As a research assistant at the German Environment Agency, I work at the European Topic Centre on Human Health and the Environment, where my work focuses on aspects relating to environmental chemicals.
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Take home message

SHS is associated with poorer mental health across several population groups and represents a largly preventale environmental risk.
Longitudinal studies and improved exposure assessments are needed to strengthen casual evidence.

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