

Toxic cooking fumes cause complications in some pregnant women

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Exposure to indoor household pollution has been linked to poor pregnancy outcomes for women in low- and middle-income countries in a new study.

Researchers from King's Faculty of Life Sciences and Medicine explored the link between the rate of eclampsia (a serious condition during pregnancy where [high blood pressure](#) results in life-threatening seizures) and the number of deaths caused by indoor household pollution.

Indoor household pollution is more commonly seen in low- and [middle-income countries](#) because of cooking and heating with solid fuels, such as wood and charcoal, and has been proven to increase the risk of adverse birth outcomes, including placental hypoxia (when the fetus does not get enough oxygen).

The researchers evaluated more than 2,690 cases of eclampsia in Ethiopia, Haiti, India, Malawi, Sierra Leone, Uganda, Zambia and Zimbabwe, and found a significant correlation between deaths due to indoor household pollution and eclampsia rates—and the correlation was even more prominent when eclampsia occurred at home.

King's Professor Andrew Shennan, one of the lead authors on the paper published in the *International Journal of Gynecology & Obstetrics*, said the findings demonstrate how air pollution can impact vulnerable populations the most.

"In-house cooking and household [pollution](#) may increase the risk of seizures. We believe that less oxygen will get to the mother's brain, and this may trigger a fit in women who already have pre-eclampsia," says Professor Andrew Shennan, Department of Women & Children's Health.

"We are lucky to have such a large dataset of women with eclampsia, as it only occurs in 1% of women with pre-eclampsia. This has allowed us to uncover this new finding. This could help explain observed inequalities in maternal healthcare in low- and middle-income

countries."

In [a previous study](#) by King's, scientists found that ninety-four percent of [maternal deaths](#) occur in low- and middle-income countries, with 22% due to hypertensive (high blood pressure) disorders like eclampsia.

Professor Shennan added, "Knowing why women have these severe outcomes allows us to reduce the risk of eclampsia and work out how to save lives.

"We have large programs of work in India, Sierra Leone and Zambia where many women have complications related to high blood pressure. Our current research is aimed at identifying the women at risk but now we are looking at ways to reduce risk, including earlier delivery. This data will help us to give advice about avoiding risk at home."

Researchers will next examine whether [climate change](#) increases the prevalence of pre-eclampsia or increases the morbidity from serious manifestations such as eclampsia.

More information: Tanya Robbins et al, Household air pollution and incidence of eclampsia in eight low- and middle-income countries, *International Journal of Gynecology & Obstetrics* (2022). [DOI: 10.1002/ijgo.14484](#)

Provided by King's College London

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