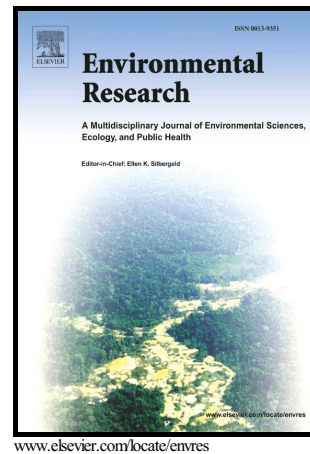


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Household fuel use and pulmonary tuberculosis in western Nepal: A case-control study.

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Abstract

BACKGROUND:

Whether cooking with solid fuels, as occurs widely in developing countries, including Nepal, is a risk factor for pulmonary tuberculosis (PTB) is uncertain. Epidemiologic studies have produced variable results. This case-control study sought to resolve this issue with a large sample size and a population-based control group.

METHODS:

PTB cases (N = 581), aged 18 to 70 were recruited from diagnostic centers in Kaski and neighboring districts of Nepal. Population-based controls (N = 1,226) were recruited. Persons who had previously been diagnosed with TB were excluded. Questionnaires were administered at participants' homes.

RESULTS:

Using liquefied petroleum gas (LPG) as the cookstove reference fuel, for women the odds ratio (OR) for having a primary cookstove that used wood was 0.21 (95% CI: 0.08,0.52); for men the corresponding OR was 0.80 (0.37, 1.74). For biogas, the OR for women was 0.24 (0.06,0.87) and for men, 1.41 (0.61, 3.23).

CONCLUSIONS:

The unexpected finding of a higher risk for women using LPG cookstoves, relative to wood or biogas-burning cookstoves, may be attributable to excluding persons with prior TB. A possible explanation is that emissions, such as ultrafine particles, formed during LPG combustion promote PTB manifestation in infected people who have not previously had PTB. The damage from the initial PTB leaves them susceptible to the PTB-promoting effects of smoke from wood fires. Further studies, excluding participants who have previously had TB are needed to confirm these findings. Use of exhaust hoods to the outdoors for all stoves, well-ventilated kitchens, and gas stoves raised above ground would reduce exposures.

KEYWORDS:

biogas, biomass, cooking, heating, liquefied petroleum gas.

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