

Poor Domestic Smoke Ventilation is associated With an Increased Risk of Rheumatic Heart Disease in Sri Lankan Children

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Recent U.K. epidemiological studies suggest a link between childhood exposure to domestic smoke and subsequent mortality from rheumatic heart disease (RHD). Smoke inhalation is known to damage tissues and increase susceptibility to infection including systemic streptococcal infection and consequent RHD. High levels of domestic smoke exposure in resource-poor countries could contribute to persistence of RHD in these areas. This case-control study tested domestic smoke exposure as a risk factor for rheumatic heart disease in Sri Lanka.

Nineteen children with RHD and 13 healthy matched controls completed a detailed questionnaire regarding their home environments. Groups were similar in age, sex and geographical distribution.

Group comparison (Mann Whitney-U /  $\chi^2$ ) showed that lacking a chimney and domestic overcrowding (a higher ratio of people living in each room) were both linked to increased risk of RHD. The association of RHD with chimney use was little altered when tested in separate multiple logistic regression models that included each of the other potential predictors of RHD.

Domestic smoke exposure may be an important and previously unrecognised risk factor for RHD. If confirmed, investment in installing domestic chimneys could be a

relatively inexpensive methodology for reduction of morbidity from RHD.

	Case (n=19)	Control (n=13)	P
Age (y)	13 (11;14)	13 (12;14)	0.71
Female	12 (63%)	8 (62%)	0.93
Weight (kg)	30 (21;36)	36 (29;40)	0.17
Household annual income (SLR)	35,000 (25k;50k)	30,000 (20k;60k)	0.66
Number of people in home	5 (5;7)	6 (5;6)	0.90
Persons per room in home	1.25 (1.00;1.75)	1.00 (1.00;1.20)	0.03
Kitchen chimney	9 (47%)	12 (92%)	0.01

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