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Assessing the Association between Improved Cookstove Adoption and Acute Respiratory Infection in Under-Fives in Rural Mchinji, Malawi: A Short Report

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Abstract

Acute respiratory infections (ARIs) are a leading cause of morbidity and mortality in Malawian children under five. Household air pollution from traditional biomass cookstoves is a significant risk factor. While improved cookstoves (ICS) are a promoted intervention, evidence of their association with ARI reduction in rural Malawi remains limited. This short report aimed to quantify the association between household adoption of improved cookstoves and the reported prevalence of ARI symptoms in children under five in rural Mchinji District, Malawi. A cross-sectional community-based survey was conducted in rural Mchinji. Randomly selected households with at least one child under five participated. Primary caregivers completed structured questionnaires on cookstove type and ARI symptoms (cough with fever or difficult breathing) in the child in the preceding two weeks. Households using improved cookstoves reported a lower two-week prevalence of ARI symptoms in under-fives (18%) than households using traditional three-stone fires (32%). The crude odds ratio indicated a significant negative association between ICS use and reported ARI symptoms. The findings suggest an association between improved cookstove adoption and reduced reported ARI symptoms in young children in this rural setting. This supports the potential public health benefit of ICS programmes. Accelerate the dissemination of improved cookstoves in rural areas through targeted subsidies and community-led programmes. Longitudinal studies are needed to establish causality and measure long-term health impacts. Improved cookstove, acute respiratory infection, household air pollution, child health, Malawi, cross-sectional study This report provides localised evidence from rural Malawi on the potential health co-benefits of improved cookstove interventions, informing district-level public health strategy.

Keywords: *Acute respiratory infection, Household air pollution, Improved cookstove, Sub-Saharan Africa, Paediatric epidemiology, Biomass fuel, Risk factor*

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