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Household Air Pollution from Solid Fuels and Cataract Development in Older Adults: A Cross-Sectional Study in Rural Kayanza, Burundi

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Abstract

Household air pollution from solid fuels is a significant public health issue in sub-Saharan Africa. While its links to respiratory and cardiovascular diseases are established, its association with ocular health, particularly cataract development, remains poorly documented in rural African settings. This study aimed to investigate the association between exposure to household air pollution from solid fuels and cataract development among adults aged 50 years and above in rural Kayanza Province, Burundi. A community-based cross-sectional study was conducted. Participants were recruited via cluster sampling. Data collection involved interviewer-administered questionnaires on fuel use and cooking practices, alongside clinical eye examinations using a portable slit lamp to diagnose cataract. Multivariable logistic regression was used to analyse the association, adjusting for confounders including age, sex, smoking, and sunlight exposure. Among 612 participants, 78.4% reported primary use of solid fuels (wood and charcoal) for cooking. The overall prevalence of cataract was 31.2%. After adjustment for confounders, the odds of having a cataract were 2.3 times higher (95% confidence interval: 1.5–3.5) among those primarily using solid fuels compared to those using cleaner fuels. Exposure to household air pollution from solid fuels is significantly associated with increased odds of cataract among older adults in this rural Burundian population. Public health strategies should integrate eye health promotion with programmes aimed at reducing household air pollution, such as promoting affordable cleaner cooking technologies. Further longitudinal research is warranted to establish causality. household air pollution, solid fuels, cataract, older adults, rural health, Burundi, cross-sectional study This study provides novel evidence from a rural African context on the link between solid fuel use and cataract, highlighting a need for integrated public health interventions.

Keywords: *Household air pollution, Solid fuel use, Cataract, Sub-Saharan Africa, Cross-sectional study, Ageing population, Rural health*

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