

## Respiratory symptoms and lung function among Ethiopian women in relation to household air pollution

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### Abstract

**Background:** Exposure to household air pollution (HAP) from burning solid fuel has been linked to COPD, respiratory symptoms and reduced lung function. In Ethiopia, the vast majority of the population relies on the use of solid fuel and is daily heavily exposed to HAP. Thus, this study aimed to assess respiratory symptoms and lung function in Ethiopian women in relation to exposure to HAP. **Methods:** We conducted a cross-sectional study among non-smoking women responsible for cooking aged 19-49 years in an urban setting in Addis Ababa and a rural setting in Butajira, Ethiopia. Data was collected on socio-demographic characteristics, respiratory symptoms and risk factors. Spirometry with reversibility testing was performed according to ATS/ERS guidelines. We used multivariable logistic regression and independent t-test to measure association and compare means, respectively.

**Results:** A total of 545 women participated in the study, out of which 147 performed spirometry with acceptable maneuver. Everyone in the rural group and 43% of the urban group were exposed to HAP from solid fuels during cooking. Nearly 51% of the rural group and 32% of the urban group had at least one respiratory symptom (cough, phlegm, wheeze, breathlessness or nose irritation). Women cooking inside the living house using solid fuels had 2.5 times (95% CI 1.63-3.83) higher odds of developing respiratory symptom compared to those using cleaner fuels. No significant difference in the lung function was observed between the groups.

**Conclusions:** We found a higher prevalence of respiratory symptoms among the rural group compared to the urban group. Given the larger population settlement in the rural parts and the use of solid fuel as the only energy source, there is a higher risk of developing chronic respiratory health problems for those women in Ethiopia. Interventions should be implemented at community level to shift to cleaner energy use.

### Publications

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2. Tamire M, et al. Community members' views on Addis Ababa University's rural community health training program: A qualitative study. *Ethiop. J. Health Dev*. 2018;32(1):10-17
3. Zerihun H,.. Tamire A (last author) et al. Implanon removal experiences of women in Butajira, Ethiopia. *Ethiop. J. Health Dev*. 2015;29(3)
4. Tamire M, Molla M. Prevalence and Belief in the continuation of Female Genital Cutting among High School Girls in Hadiya Zone, Southern Ethiopia. *BMC public Health* 2013, 13:1120