Cooking Fuel and Chronic Respiratory Disease in Aging Adults in Ghana and Mexico: A Crosssectional Analysis DAHDALEH



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Introduction

- In 2017 alone, chronic respiratory diseases (CRDs) were responsible for almost 4 million deaths globally and a further 1,470 disability lifeadjusted years (DALYs) per 100,000.
- The combustion of kerosene and solid cooking fuels (e.g., charcoal, wood, biomass, etc.) increases airborne pollutants such as carbon monoxide and fine particulate matter.
- Long-term exposure to these airborne pollutants has been shown to be a source of chronic inflammation in the respiratory system, increasing the risk of CRDs.

Results	
NE	PRESENT
	175/1%
	17.0470

This study examined the association between household cooking fuel and CRD risk among older adults in Ghana and Mexico.



Methods

Study Setting:

Cross-sectional analysis of Wave 2 (2014-2015) from the Study on Global AGEing and Adult Health (SAGE), using data from Ghana (N=3,340) and Mexico (N=3,903).

Outcome:

- Having symptoms or medical diagnosis of a CRD (dichotomous).
- Respondents had symptoms of CRDs if, in the last 12 months, they reported:
 - Experiencing any shortness of breath at rest.
 - Coughing or wheezing for ten minutes or more at a time.
 - Coughing up sputum or phlegm for most days of the month for at



100

80

60

40

20

Figure 2: Distribution of CRDs in Ghana and Mexico. The proportion of those reporting a diagnosis or symptoms of CRDs in Mexico (17.54%) is more than double that of Ghana (6.55%).



Figure 3: Effects of cooking fuel. Cooking fuel was not associated with differences in CRD risk among men. However, among Ghanaian women, the use of solid fuels was associated with higher odds of CRDs compared to gas/electricity (aOR: 2.60; 95%CI: 1.03-6.56).

Effect of Cooking Fuel (Mexico)



Figure 6: Other risk factors associated with CRDs (Ghanaian Females). Among Ghanaian females, being aged 65 and older is associated with greater odds of chronic lung disease (aOR: 1.86; 95%CI: 1.26-2.75), as is being a current smoker (aOR: 7.79; 95%CI: 1.66-36.65).



Figure 7: Other risk factors associated with CRDs (Mexican Males). Among Mexican males, a living environment where living and sleeping spaces were shared was associated (aOR: 9.39;

least 3 months.

Exposure:

- Primary Household Cooking Fuel (dichotomous).
- Solid fuels (wood, charcoal, coal, and other biomass) or kerosene
- Liquified natural gas or electricity

Covariates: Age, Sex, Education, Rural-urban Residence, Smoking Behaviors, Waist-to-hip Ratio

Data Analysis:

Statistical Analyses:

- Logistic regression with robust standard errors was conducted to examine the association between CRDs and primary household cooking fuel.
 - Multivariate models included gender-stratified analysis for each country.

Survey Weights:

• To ensure representativeness to the wider population in each country, all analyses were conducted with the application of survey weights.





Figure 4: Effects of cooking fuel. Cooking fuel was not associated with differences in CRD risk among either men or women in Mexico.



95%CI: 1.8-48.98) compared to those whose living and sleeping spaces were separate.



Figure 8: Other risk factors associated with CRDs (Mexican Females). Among Mexican females, higher odds of CRDs were seen among those having no secondary education (aOR: 2.51; 95%CI: 1.53-4.11) and not stating their education level (aOR: 2.13; 95%CI: 1.17-3.9) compared to those with at least a secondary education certification.

Conclusions



Figure 1: Fuel use patterns in Ghana and Mexico. Solid fuels and kerosene are more widely used in Ghana by a large margin.

Our findings indicate a stark gender disparity: women in Ghana face a heightened risk of CRDs from solid fuels.

Despite Mexico having almost twice the proportion of individuals reporting CRDs, the scarce use of solid fuels appears to decouple cooking fuel from CRD risk.

Public health programs addressing respiratory health among older adults must also account for the intersection of gender, environment, and health.

Figure 5: Other risk factors associated with CRDs (Ghanaian Males). Among Ghanaian males, being aged 65 and older is the only risk factor associated with greater odds of chronic lung disease (aOR: 1.86; 95%CI: 1.10-3.15).

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