

The Influence of HIV-infection and Respiratory Risk Factors on Pulmonary Condition in Sub-Saharan Africa



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BACKGROUND

Data about obstructive lung disease (OLD) in HIV from Sub-Saharan Africa (SSA) are scarce, and the association between HIV-infection and OLD in SSA remains unclear.

PARTICIPANTS AND METHODS

We conducted a cross-sectional study in April and May 2016 embedded in the Ndlovu Cohort Study in rural Limpopo, South Africa.

We performed

- A respiratory questionnaire
- Pre- and post-bronchodilator spirometry measurements

Airflow obstruction was defined as a FEV₁/FVC-ratio less than the lower limit of normal. Multiple regression analysis was used to investigate if HIV was associated with OLD, adjusted for pulmonary risk factors and occupational exposure.

RESULTS

201 consecutive participants were enrolled in the study, of whom 84 were HIV-positive and 117 were HIV-negative. 195 participants provided acceptable pre- and postbronchodilator spirometry.

AIMS

We investigated the relation between

- HIV-infection
 - Respiratory symptoms
 - Occupational and lifestyle factors
- and
- Prevalence of airflow obstruction in a rural South African population

Table 1 Baseline characteristics

	All N=201	HIV- N=117	HIV+ N=84
Men	101 (50.25%)	76 (65.0%)	25 (29.8%)*
Age	38 (22)	39.0 (14.8)	42.4 (10.4)
Receiving cART	NA	NA	69 (82,1%)

cART, combination antiretroviral therapy

Data in n (%), mean (SD) or median (IQR). Analyses adjusted for sex and age.

*p<0.05

Fig. 1 Medical History

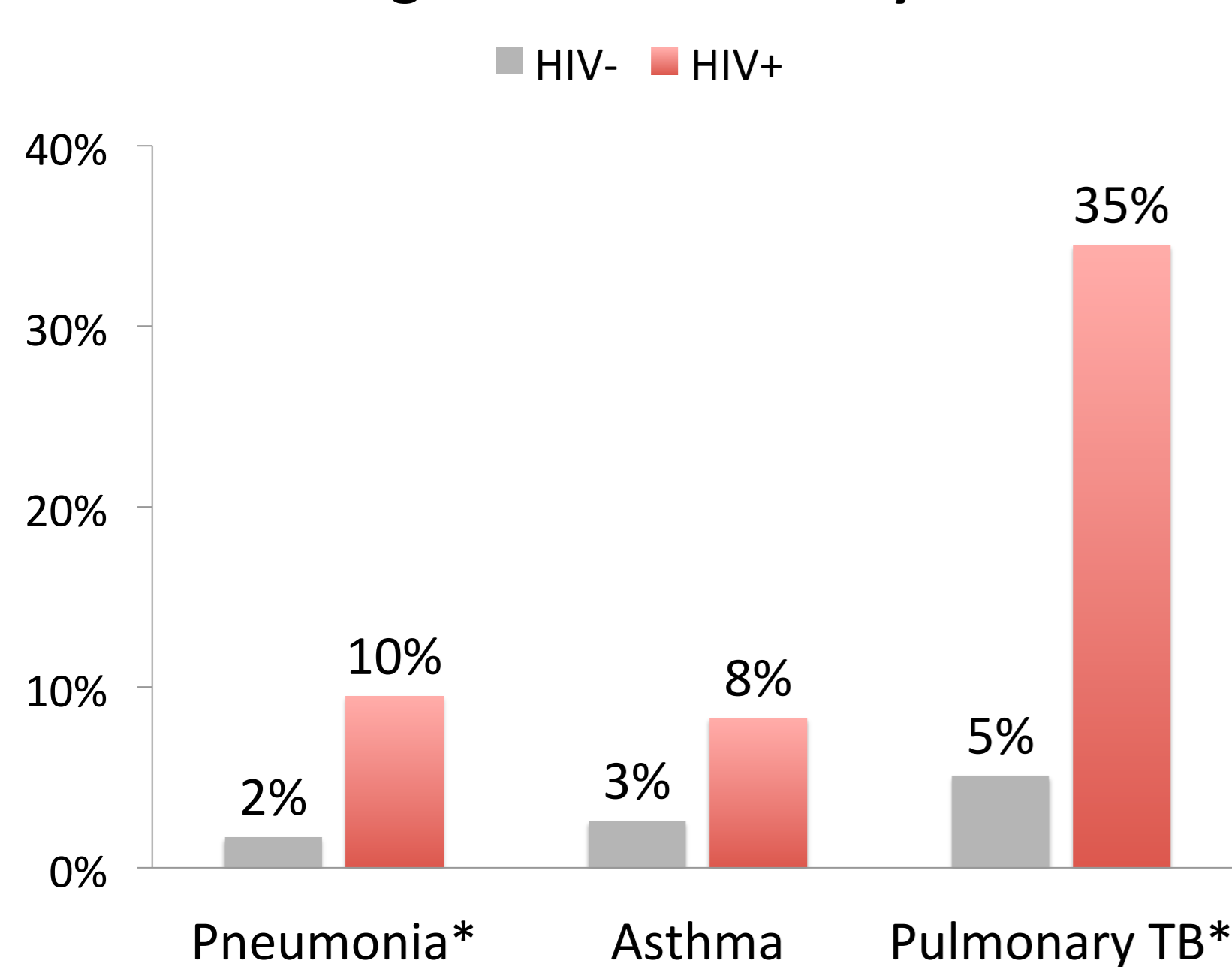


Fig. 2 Chronic Respiratory Symptoms

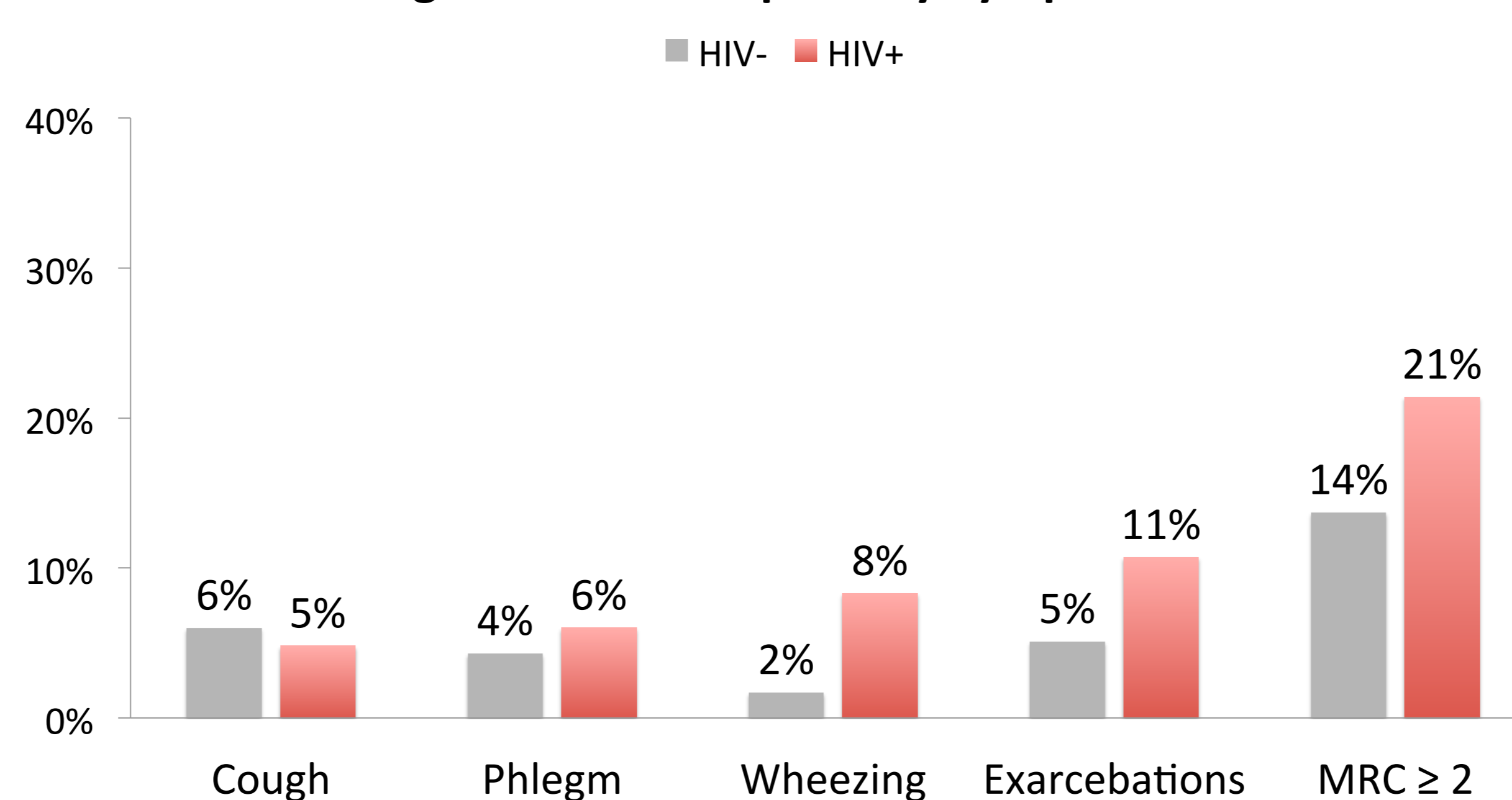


Fig. 3 Lifestyle and Occupational Exposure

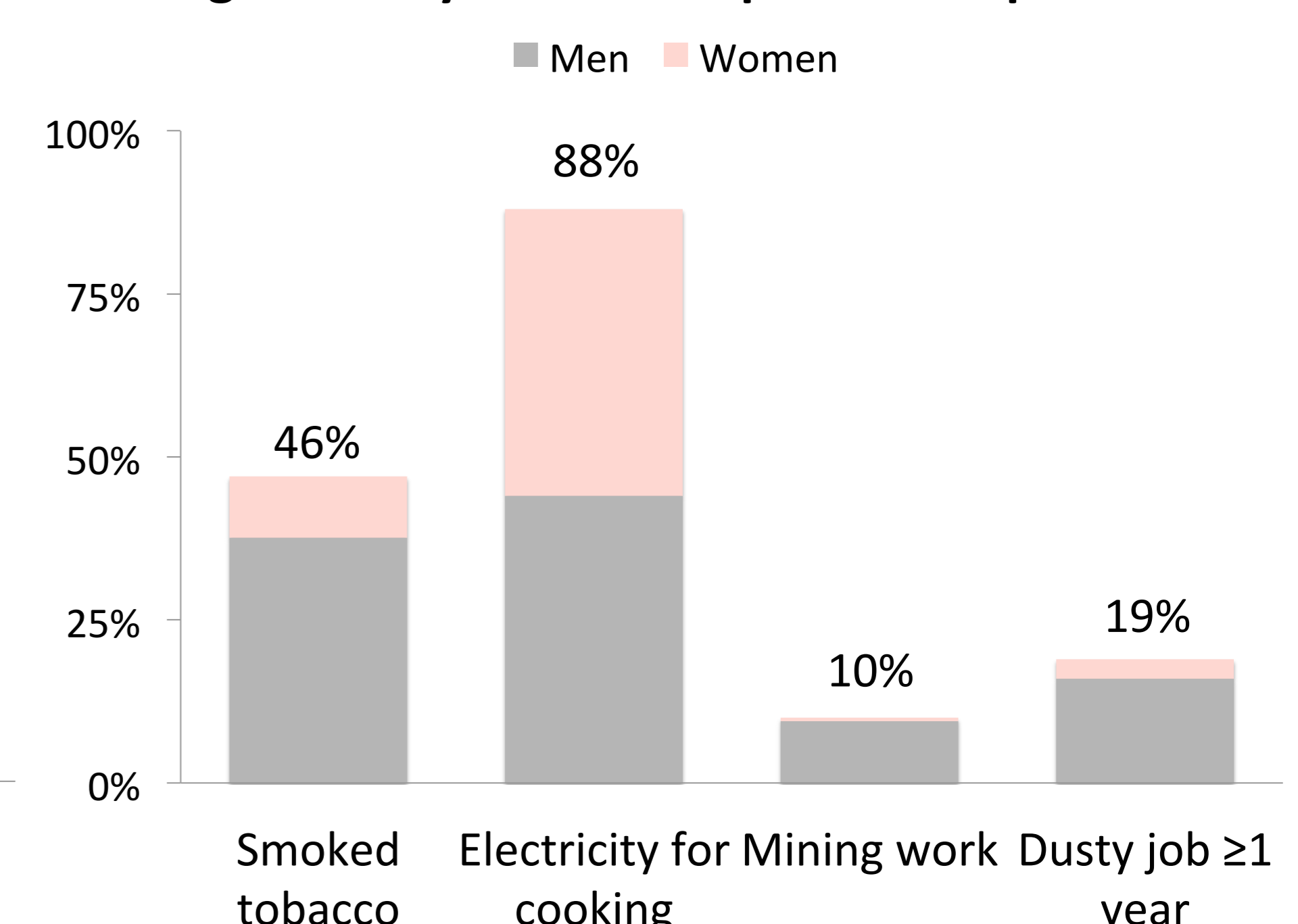


Table 2 Spirometry results

	All N=195	HIV- N=113	HIV+ N=82
Post- FEV ₁ (L)	2.943 (0.79)	2.987 (0.047)	2.800 (0.057)*
Post-FVC (L)	3.514 (0.81)	3.525 (0.051)	3.441 (0.062)
Post- FEV ₁ /FVC -ratio	0.84 (9.03)	0.85 (0.008)	0.82 (0.009)*
FEV ₁ /FVC < LLN	14 (7.2%)	4 (3.5%)	10 (12.2%)*

FEV₁ forced expiratory volume in 1 s; FVC, forced vital capacity; LLN, lower limit of normal

Data in n (%), mean (SD). Analyses adjusted for sex and age.

*p<0.05

- Men in SSA appear to have a higher burden of lifestyle and occupational risk factors than women (Fig. 3)
- When correcting for pulmonary risk factors (Fig. 1 & 3) in multivariable analysis, HIV was not an independent factor for decreased FEV₁/FVC (p=0.88).
- Independent risk factors for decreased lung function in men were older age, history of TB and having worked in a dusty job for more than one year (R²=0.492).

CONCLUSIONS

- HIV+ group had lower FEV₁ and FEV₁/FVC than HIV- controls
- Prevalence of airflow obstruction was significantly higher in HIV+ group
- HIV-infection was not independently associated with decline in lung function

