

Rural Residence and Poverty are Independent Risk Factors for COPD in the United States

Sarath Raju, Corinne A. Keet, Laura M. Paulin, Elizabeth C. Matsui, Roger D. Peng, Nadia N. Hansel, and Meredith C. McCormack

Online Data Supplement

TABLE E1. Full model of Individual and Community Level Predictors of COPD with Household Poverty Categorized

	Crude Model			Adjusted Model*		
	Odds Ratio	95% CI	P-Value	Odds Ratio	95% CI	P-Value
<u>Census Tract Characteristics</u>						
Urban-Rural Status						
Urban				Reference		
Suburban	1.04	0.93-1.16	0.51	0.97	0.87-1.07	0.51
Medium Metro	1.30	1.17-1.44	<0.001	1.03	0.93-1.15	0.53
Small Metro	1.48	1.28-1.44	<0.001	1.08	0.93-1.24	0.31
Rural	2.01	1.80-2.23	<0.001	1.26	1.11-1.43	<0.001
Census Level Poverty						
Community Poverty	1.46	1.35-1.57	<0.001	1.12	1.03-1.23	0.009
Regions						
Northeast				Reference		
Midwest	1.35	1.21-1.50	<0.001	1.22	1.09-1.38	0.001
South	1.32	1.19-1.47	<0.001	1.28	1.15-1.42	<0.001
West	0.87	0.78-0.98	0.023	1.01	0.90-1.14	0.87
Census Tract Fuel Use[†]						
Wood	1.01	1.01-1.02	<0.001	1.00	0.99-1.00	0.23
Coal	1.07	1.04-1.11	<0.001	1.03	0.98-1.08	0.28
Occupation Category[‡]						
Agriculture, Mining	1.02	1.01-1.03	0.002	1.00	1.00-1.01	0.64
Construction	1.02	1.01-1.03	0.001	1.00	0.99-1.01	0.94
Manufacturing	1.02	1.01-1.02	<0.001	1.00	1.00-1.01	0.131
<u>Individual Characteristics</u>						
Demographics						
Age (per 10 year increase)	1.32	1.29-1.35	<0.001	1.04	1.00-1.07	0.039
Smoking duration	1.04	1.04-1.05	<0.001	1.04	1.03-1.04	<0.001
Race						
White				Reference		
Black	0.87	0.79-0.95	0.002	0.69	0.62-0.77	<0.001
Asian	0.29	0.24-0.36	<0.001	0.44	0.36-0.55	<0.001
Hispanic	0.47	0.42-0.53	0.017	0.50	0.44-0.58	<0.001
Insurance Status						
Private Insurance				Reference		
No Insurance	1.62	1.42-1.84	<0.001	1.10	0.95-1.28	0.189
Medicare	3.14	2.89-3.41	<0.001	1.89	1.70-2.10	<0.001
Medicaid	5.06	4.59-5.58	<0.001	2.76	2.44-3.14	<0.001
Education						
College and Beyond				Reference		
High School Graduate	1.62	1.49-1.75	<0.001	1.09	1.00-1.19	0.061
Less Than High School	2.13	1.96-2.31	<0.001	1.20	1.08-1.32	0.001
Home Ownership Status						
Owns Home				Reference		
Other Arrangement (Rented)	1.54	1.43-1.65	<0.001	1.20	1.11-1.30	<0.001
Household Poverty[§]						
>2.00				Reference		
<2.00 and ≥1.00	2.10	1.95-2.27	<0.001	1.32	1.21-1.47	<0.001
<1.00	2.63	2.44-2.84	<0.001	1.41	1.27-1.57	<0.001

*Adjusted for urban-rural status, community wealth, region, census level occupational distribution, census level fuel use, race, age, sex, smoking duration, household poverty, home ownership, education, and insurance type

†Per 1% increase in census tract residents using this fuel type as their primary source of heating

‡Per 1% increase in census tract residents employed in this occupation

§ Household Income to Poverty Ratio

Table E2. Sensitivity Analysis For Different Definitions of COPD*

	Original Definition		Excluding Asthma [†]		Excluding Chronic Bronchitis [‡]	
	Odds Ratio (95% CI)	P-Value	Odds Ratio (95% CI)	P-Value	Odds Ratio (95% CI)	P-Value
Urban-Rural Status						
Urban			Reference			
Suburban	0.97 (0.87-1.07)	0.51	0.90 (0.79-1.02)	0.088	1.03 (0.90-1.18)	0.68
Medium Metro	1.02 (0.92-1.14)	0.69	0.96 (0.85-1.09)	0.56	1.07 (0.94-1.23)	0.31
Small Metro	1.05 (0.91-1.21)	0.49	0.97 (0.82-1.14)	0.67	1.16 (0.97-1.39)	0.102
Rural	1.23 (1.09-1.40)	<0.001	1.16 (1.01-1.33)	0.035	1.34 (1.14-1.58)	<0.001

*Adjusted for urban-rural status, community and household wealth, region, census level occupational distribution, fuel use, race, age, sex, smoking duration, home ownership, education, and insurance type

[†]Adjusts original definition of COPD to not include individuals with a current diagnosis of asthma

[‡]Excludes individuals who only have a diagnosis of chronic bronchitis from having COPD