News Release

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COPD Is More Prevalent in Poor and Rural Areas of the U.S.

ATS 2015, DENVER—Living in a rural area and being poor are risk factors for chronic obstructive pulmonary disease (COPD), said Sarath Raju, MD, MPH, Johns Hopkins School of Medicine, Baltimore, Maryland, lead author of a study presented at the 2015 American Thoracic Society International Conference.

The researchers used a nationally representative sample to pinpoint COPD risk factors. "We wanted to identify the prevalence of COPD in urban and rural areas in the U.S. and determine how residence, region, poverty, race and ethnicity, and other factors influence COPD rates," Dr. Raju said.

Using data from the National Health Interview Survey, the U.S. Census, and the National Center for Health Statistics Urban-Rural Classification Scheme, the 87,701 participants included a population-based sample of adults older than age 40. The study's main outcome was the prevalence of COPD, defined as self-reported emphysema or chronic bronchitis.

The researchers looked at both community-based and individual-based factors that are potential predictors of COPD, such as region, census level poverty, urban/rural residence, fuel sources, age, sex, race/ethnicity, smoking years, household income, home ownership, and education status.

The prevalence of COPD in the study was 7.2%. However, in small metro/rural-poor communities, the prevalence was 11.9%. Rural residence, southern residence, and community poverty were all associated with a greater prevalence of COPD.

When the researchers added individual income to the model, community poverty was no longer significant. Researchers found an association between biomass fuels and COPD in the South, but there was no association in an overall multivariate model.

"Findings suggest regional differences and the need for future disparities research to understand the potential contribution of occupational exposures, fuel sources, and indoor air pollutants to COPD prevalence in poor, rural areas," the researchers concluded.

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* Please note that numbers in this release may differ slightly from those in the abstract. Many of these investigations are ongoing; the release represents the most up-to-date data available at press time.

Abstract 63441

The Impact of Poverty and Rural Residence on Chronic Obstructive Pulmonary Disease (COPD) Prevalence: A Nationwide Analysis
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Scientific Abstract
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06.03 - COPD: Epidemiology (CP/EOPH)
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Abstract Body

RATIONALE:

COPD remains a major cause of morbidity and mortality. Worldwide, poor and rural areas facing environmental pollutants and indoor burning of biomass continue to have a high burden of disease. While initiatives to estimate the prevalence of COPD worldwide are ongoing, there remains a need to understand the distribution of COPD within the United States and risks conferred by community and individual-level factors. Our study goals were to 1) identify the nationwide prevalence of COPD in urban and rural areas in the U.S., and 2) determine the impact of rural residence, region, neighborhood poverty, race/ethnicity, household poverty, and housing characteristics on COPD prevalence.

METHODS:

We utilized National Health Interview Survey(NHIS) 2009-2011 data linked to neighborhood data from U.S. Census and National Center for Health Statistics Urban-Rural Classification

Scheme. Participants included a population-based sample of the non-institutionalized U.S. population, limited to adults > 40 years. The main outcome was prevalence of COPD, defined as self reported emphysema or chronic bronchitis. Multivariate logistic regression models were constructed to investigate predictors of COPD, including community-level variables (region, census level poverty, urban/rural residence, fuel sources) and individual-level variables (age, sex, race/ethnicity, smoking years, household income, home ownership, education status). Analyses were completed using the sample weights provided in the NHIS.

RESULTS:

This analysis included 87,701 participants. The prevalence of COPD was 7.2% (95% CI, 7.0-7.6) nationwide, with a prevalence of 11.9%(95% CI, 10.0-14.1) in rural-poor communities (Figure 1). In adjusted models, in addition to white race, age, male sex, and years of smoking, several community level factors were associated with COPD: rural residence (Odds Ratio(OR): 1.23, p<0.01), southern residence (OR: 1.25, p<0.01) and community poverty (OR: 1.18 p< 0.01). When individual income was added to the model, community poverty was no longer significant and individual income was protective (OR 0.99 per unit increase in household income to poverty ratio, p< 0.01). In bivariate models (OR 1.28 p< 0.01) and in the multivariate model of individuals living in the south, exploration of community-level fuel sources revealed an association between biomass fuels and COPD, however there was no association in the overall multivariate model.

Figure 1. COPD Prevalence in the United States by Urban Rural Residence and Community-Level Poverty
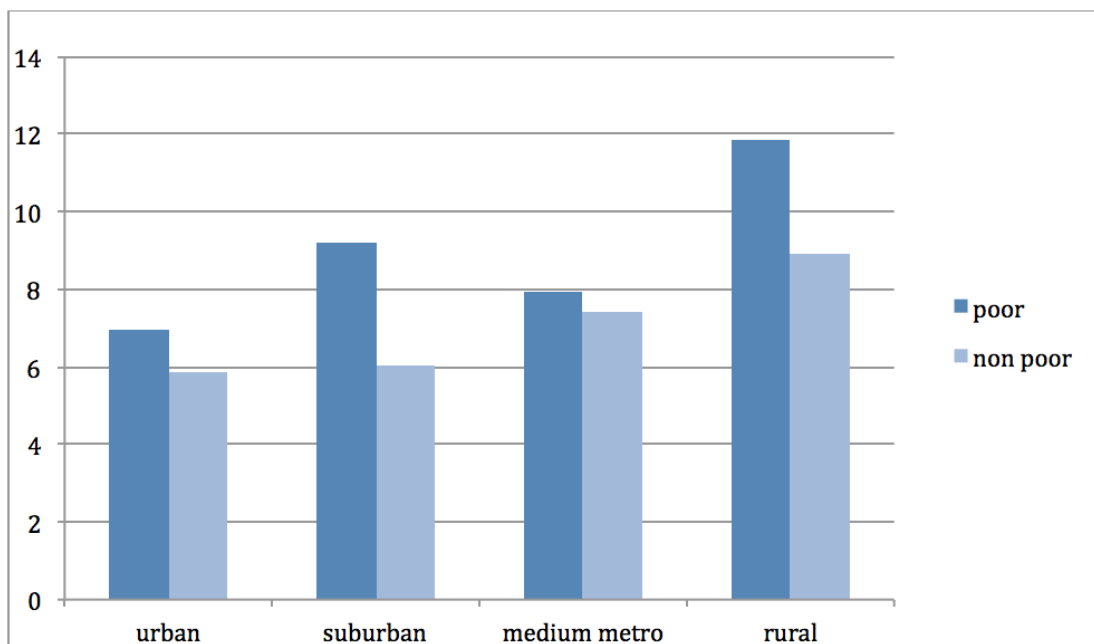
CONCLUSION: In a nationally representative sample, living in a rural community and poverty were independent risk factors for COPD. Findings suggest regional differences and the need for

future disparities research to understand the potential contribution of occupational exposures, fuel sources, and indoor air pollutants to COPD prevalence in poor, rural areas.