

Smoking, particulate fuel use, increasing BMI (but not betel use) increase the probability of obstructive airway conditions in adults from National Capital District, PNG

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Exposure to tobacco smoke and particulates from biomass fuel smoke are a risk factors for Chronic Obstructive Pulmonary Disease (COPD). Papua New Guinea has a high prevalence of smoking, which is a leading cause of COPD. In addition to tobacco use, many families in PNG also use fuels producing particulate smoke for cooking (e.g. wood, charcoal or kerosene) which may further increase the risk of developing lung disease. The chewing of Betel nut (*Areca catechu*) is also prevalent in PNG, and has been shown to cause bronchoconstriction in asthmatic patients. This study was conducted to determine the relative contribution of smoking, particulate fuel use, and betel use have on the probability of developing obstructive lung disease.

A prospective cross-sectional study measured the lung function of apparently healthy adults residing in the National Capital District. Lung function was assessed using spirometry, which was conducted according to the American Thoracic Society guidelines.

Seventy-six subjects met the inclusion criteria out of hundred and forty volunteers. Smoking and biomass smoke inhalation both independently increased the probability of decreased lung function as measured by a %FEV1/FVC less than 80% of the predicted value. The use of betel was not found to significantly alter the probability of lowering %FEV1/FVC below 80% of predicted values. Interesting, increasing BMI was found to increase the probability of decreasing lung function in smokers who did not use particulate fuels and in particulate fuel users who did not smoke, and was most significant in smokers who used particulate fuels. Understanding the interactive effects between COPD risk factors will help predict health outcomes in PNG and increase public education on COPD prevention.