

Chronic Obstructive Pulmonary Disease (COPD): A Preventable Cause of Death and Disability

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Chronic obstructive pulmonary disease (COPD) is one of the most common non-communicable disease, the leading causes of death and disability in poor & middle income nations like Bangladesh. It is a common lung disease caused by abnormalities in the airways (bronchitis, bronchiolitis) and/or alveoli (emphysema) that produce persistent, often progressive, airflow obstruction¹. COPD is a common cause of global morbidity and mortality. The global prevalence of COPD about 12.0% of the general population and currently ranks as the 3rd cause of mortality in the world (responsible for 3 million deaths)². The incidence of COPD is expected to rise and by 2060, it is estimated that there may be over 5.4 million deaths annually from COPD³. In males and females prevalence and mortality of COPD are similar⁴. According to the Global Initiative for Chronic Obstructive Lung Disease (GOLD) criteria the prevalence of COPD in Bangladesh was estimated around 12.5%⁵. Across the world, cigarette smoking is the most commonly encountered risk factor for COPD. Cigarette smokers have a higher prevalence of respiratory symptoms and lung function abnormalities and a greater COPD mortality rate than non-smokers⁶. Outdoor air pollutions, indoor air pollutions from biomass fuel burning are some of the known factors that contribute to the high prevalence of COPD in Bangladesh^{5,7}. About 15.0-20.0% of COPD cases are due to occupational exposures to pollutants at the workplace⁸. Another types of tobacco e.g., pipe, cigar, water pipe and marijuana are also risk factors for COPD. Passive exposure to cigarette smoke may also contribute to COPD⁹. Other risk factors such as respiratory infections, poor nutritional status, chronic asthma, impaired lung growth, poor socio-economic status and genetic factors are also important for disease development^{10,11,12}. Airflow limitation is a major physiologic change in COPD, can result from small airway disease and/or emphysema. An increased number of goblet cells and an enlargement of mucus secreting glands in the

larger airways contribute to enhanced secretion of airway mucus that manifests as chronic bronchitis. Loss of elastic tissue surrounding the smaller airways, accompanied by inflammation and fibrosis in the airway wall and mucus accumulation within the airway lumen, results in airflow limitation, further increased by enhanced cholinergic tone. So, premature airway closure leads to gas trapping and hyperinflation¹³. Spirometry is necessary to establish the diagnosis of COPD by showing persistent airflow limitation¹⁴. Comorbidities including cardiovascular diseases, lung cancer, osteoporosis, infections, metabolic syndrome and diabetes frequently occur in COPD⁹. Frequent exacerbations have been associated with poorer quality of life and worse morbidity and mortality. Almost all (90.0%) of the deaths caused by COPD occurred in low and middle-income countries (LMICs). Bangladesh, like other LMICs, is facing epidemiological transition with an increasing burden of COPD⁵.

The American Thoracic and European Respiratory Societies and GOLD boldly define COPD as a 'preventable' as well as 'treatable' disease. Disease prevention is conventionally divided into primary, secondary and tertiary prevention. Primary prevention aims to prevent the development of the disease, secondary prevention involves reducing the impact of disease by early identification and modification of risk factors, and tertiary prevention aims to prevent the development of complications of the disease. Prevention has long been considered better than cure.

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Reductions in smoking, improvements in working environments, changes in heating and cooking practices and better nutrition & perinatal care will substantially reduce the burden of the disease for future generations around the world¹⁵. Though, it is a prevalent, preventable, and treatable condition, but most often it has not been diagnosed and, hence, not treated appropriately. Every year “World COPD Day” was organized by the Global Initiative for Chronic Obstructive Lung Disease (GOLD) in collaboration with health care professionals and COPD patients and the 2024 theme is “Know Your Lung Function” which takes place on 20th November. So, raising awareness about COPD, its prevention, early diagnosis and management may reduce the burden of COPD worldwide.

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